Longitudinal associations between passions and adjustment in adolescence: Positive mood and unstructured leisure activities as mediators

By

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Abstract

Passions are activities that people find important, like or enjoy, and on which they spend large amounts of time. Research examining passions in adolescence has been limited, despite a tendency for adolescents to explore their identity by trying new activities (Dworkin et al., 2003). The purpose of the present study was to examine the association between adolescent passions and positive adjustment (psychological well-being, optimism, purpose in life, and low risk-taking), as well as investigate possible underlying mechanisms for the link between passions and adjustment. High school students (N=2270, 48.7% female) from Southern Ontario completed questionnaires in grades 10, 11, and 12. Path analyses were conducted to examine cross-lag paths among all study variables. Passions predicted higher optimism and purpose, as well as lower negative risk-taking, over time, but these adjustment indicators in turn did not predict higher passions over time. Additionally, positive mood and unstructured leisure activities partially mediated these associations. Passions appears to be important for adolescent adjustment, and may serve as a protective factor or help to foster thriving.

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Overview

Adolescents tend to become involved in many different types of activities across the high school years, but only a handful of these activities may become very important in their lives. Researchers (e.g., Vallerand, 2008, Benson & Scales, 2009) use the term *passions* to refer specifically to activities that individuals deem important and on which they enjoy spending significant amounts of time. A wide range of different activities or interests could be considered a passion (Benson & Scales, 2009). For example, passions could involve engagement in sports, arts, creative activities, or clubs. Alternatively, having a talent could be considered a passion. Passions also could develop when adolescents are committed to a particular cause, value, or way of living. Having passions may contribute to psychological adjustment and well-being, both in adolescence (Benson & Scales, 2009; Coatsworth et al., 2006) and adulthood (Vallerand, 2008; Vallerand et al., 2003). Additionally, time spent on passions may facilitate the experience of positive affect and emotions (Vallerand et al., 2003; Coatsworth et al., 2006), which also are important for psychological well-being.

Research on passions in adolescence fits within the positive youth development (PYD) perspective, a recent movement in developmental psychology (Lerner, Almerigi, Theokas, & Lerner, 2005). The goal of research on PYD is to identify factors that promote the positive development, strength, health, and well-being of adolescents (e.g., resilience, self-actualization, optimism, initiative), as opposed to focusing primarily on ways to ameliorate negative or problematic aspects of development (e.g., drug use, suicide, violence, depression; Benson & Scales, 2009; Larson, 2000; Lerner et al., 2005; Seligman & Csikszentmihalyi, 2000). Research

on passions fits within the PYD perspective because activities that are passions are hypothesized to promote positive development.

Additionally, encouraging adolescents to engage in passions may promote thriving, which refers to adolescents showing optimal or exemplary development (Larson, 2000). Thriving is contrasted with developmental competence, or when adolescents achieve expected developmental tasks or are just "getting by" without serious problems (Benson & Scales, 2009). According to Benson and Scales (2009), thriving is a step above developmental competence in that thriving adolescents can be classified as having an upward developmental trajectory. Passions may facilitate thriving because time spent on passions may contribute to well-being (Vallerand, 2008) and to fulfilling basic psychological needs of autonomy, competence, and relatedness (Ryan & Deci, 2000). Passions also may help make individuals' lives more meaningful (Vallerand et al., 2003) and can provide adolescents with a sense of purpose (Benson, 2006). In fact, possession of a passion may be one important indicator that an adolescent is thriving (Benson & Scales, 2009).

Unfortunately, there appear to be few studies exploring passions in adolescence (Froh et al., 2010), particularly longitudinal studies. Thus, the purpose of the present study was to examine passions among adolescents and explore the association between passions and positive adjustment (psychological well-being, optimism, purpose in life, and low negative risk-taking). In the present study I also investigated two potential mediators of the relation between passions and adjustment, namely, positive affect and unstructured leisure activities. In the following introduction, I will provide a definition of passions based on terms used in the current literature. I will then describe how and why passions might be important for psychological adjustment and well-being, providing supporting evidence from recent empirical research. Additionally, I will

review recent empirical research indicating that two variables may mediate the relation between passions and adjustment, specifically, positive mood and unstructured leisure activities. Lastly, I will present the research questions and hypotheses for the present study.

Definition of Passions

Researchers who have studied passions have provided different conceptualizations of the components of passions. Vallerand and colleagues (2003) were the first to provide a definition, suggesting that passion is "a strong inclination toward an activity people like, find important, and in which they invest time and energy" (Vallerand et al., 2003, p. 757). According to Vallerand et al., passions are activities that are significant in people's lives, and on which they regularly spend time. In fact, passions may become so highly valued that they become central features of individuals' personal identities (relevant features, characteristics, and experiences) and serve to define a person (i.e., a passion for basketball makes a person define his or her identity as a basketball player).

More recently, Fredricks, Alfeld, and Eccles (2010) surveyed the psychology literature on passions and related constructs, and identified common characteristics of many researchers' definitions of passions. The results from their survey were synthesized into the following definition of passions: passions are activities that are perceived as valuable, that people devote time and energy to, and that are incorporated into people's identity. Additionally, when spending time on an activity, individuals should exert effort to challenge themselves and learn how to do the activity to the best of their ability.

Other researchers also have provided definitions for passions. For example, Benson and Scales (2009) specifically examined what they termed "core passions," and defined these passions as "passion for a self-identified interest, skill, or capacity that metaphorically lights a

fire in an adolescent's life, providing energy, joy, purpose and direction," (Scales, Benson, & Roehlkepartain, 2011, p. 264). According to Benson and Scales (2009), adolescents should spend time on passions for their own sake (i.e., intrinsically motivated), and not only for any external rewards. Scales, Benson, and Roehlkepartain (2011) measured passions empirically by asking participants whether they had a talent, interest, or hobby; whether it was more than just interesting or fun; and whether it was something that they were happy, energized, and passionate about. The participants also were asked if the activity gave them joy and energy; was an important part of their life; and whether it gave them real direction, purpose, or focus (Scales et al., 2011).

Coatsworth, Palen, Sharp, and Ferrer-Wreder (2006) were more narrow in their definition of passions. They defined passions as self-defining activities that reflected the participant's identity. Passions were assessed by asking participants if they took part in activities that represented who they were as a person (e.g.,instrumental [e.g., paid work, studying, housework], sports, arts, reading, writing, religious, altruistic, clubs, or scouts activities).

Froh and colleagues (2010) defined passions as absorption; that is, activities in which individuals were "intensely and readily engrossed" (p. 313). In a research study, Froh et al. assessed passions with a self-report questionnaire in which participants were asked various questions about their "hobbies (e.g., sports, reading, musical instruments, acting)" (p. 316), including the following: 1) how much they were focused on the activity; 2) whether they experienced flow (got so involved in what they were doing they got "lost" in it); 3) whether they considered that having a hobby was important; and 4) how much they felt they needed to have something to do with their time (representing a desire to be active).

A number of researchers have focused specifically on *engagement* in activities, which is defined as "the meaningful participation and sustained involvement of a young person in an activity, with a focus outside of him or herself," (Pancer, Rose-Krasnor & Loiselle, 2002, page 2), or, similarly, as "active participation in the central activities of the proximal environment" (Mahoney et al., 2007, p. 386). Three different components of engagement have been identified, including behavioural, psychological, and emotional engagement (Bartko, 2005; Rose-Krasnor, 2009). More specifically, behavioural engagement is present when adolescents are involved and participating in an activity (Bartko, 2005). Psychological engagement (also called cognitive engagement) is defined as "being motivated to a degree that [an individual's] attention is absorbed in the tasks and challenges in an activity" (Dawes & Larson, 2011, p. 259). Finally, emotional engagement refers to adolescents' emotional investment in activities, and their positive and negative reactions (Bartko, 2005; Rose-Krasnor, 2009).

In summary, these definitions all contain reference to at least one of the following three components: intrinsic motivation, identity, and engagement. Benson and Scales (2009) make specific reference to intrinsic motivation in their definition of passions. Further, intrinsic motivation is included in descriptions of passions as activities that people like (Vallerand et al., 2003), or are perceived as valuable (Fredricks et al., 2010), or are emotionally or psychologically engaging (Bartko, 2005; Rose-Krasnor, 2009).

Several of the above definitions include criteria related to passions reflecting an individual's identity. Passions are defined as activities that one finds important, or as activities that are so highly valued that they become central features of an individual's identity (Vallerand et al., 2003). Passions are also defined as activities that are incorporated into people's identity

(Fredricks et al., 2010), as an important part of a person's life (Scales et al., 2011), or that reflect a person's identity or represent who one is as an individual (Coatsworth et al., 2006).

Finally, the third component of passions, engagement, is referenced in many of the above definitions. Passions are described as activities in which people regularly invest time and energy (Fredricks et al., 2010; Vallerand et al., 2003), and on which they exert effort (Fredricks et al., 2010). Similarly, behavioural engagement is indicated by involvement and participation in activities (Bartko, 2005). Therefore, a synthesis of the three components of passions (intrinsic motivation, identity, engagement) were combined into a single definition used in the current study: Passions are activities that people 1) *like and enjoy*, 2) consider *important*, and 3) on which they devote significant *time and energy*.

Adolescence as a Sensitive Period for the Development of Passions

Adolescence may be a sensitive period in the lifespan that might predispose individuals to develop a passion, in contrast to other age periods such as childhood and adulthood. For example, in a research study in which college students were asked whether they had a passion and how long they had it, most participants reported taking up their passions during adolescence (Vallerand et al., 2003). From a developmental psychology perspective, there may be specific qualities during adolescence that may facilitate the development of passions. Two factors that may make passions especially important in adolescence are identity exploration and autonomy.

Identity development is a major developmental milestone of the adolescent age stage according to Erikson's (1968) psychosocial model and, as a result, adolescents undertake many identity explorations (Benson, 2008). Exploring new activities and interests is one way that adolescents begin developing their identities as they try out new things and experiment with new interests (Dworkin et al., 2003; Sharp et al., 2006). Work and career are especially important

aspects of identity development in Western cultures, and exploring future career and educational paths is a developmental task of the adolescent age period (Dawes & Larson, 2011). For example, for an adolescent who is considering having a future career as an artist, one way he or she might fully explore that possibility would be to enrol in art classes or practice art at home. Over time, these activities could develop into passions. In comparison, adults should be more likely to have already established a strong sense of identity, and therefore might be less likely to undertake new activities to explore their identities.

Another factor that is important during adolescence is autonomy, or independence and self-determination. Autonomy is necessary for intrinsic motivation or doing an activity for the enjoyment of the activity itself (Ryan & Deci, 2000). Intrinsic motivation, moreover, is included by many researchers as one component of passions (Benson & Scales, 2009; Fredricks et al., 2010; Vallerand, 2008). Adolescents have more autonomy than children in that they spend more time without adult supervision. Adolescents also are given and enjoy more choice in matters that are important to them (e.g., what leisure activities they pursue, how to spend their own money). Children, on the other hand, are more restricted by their parents' choices for activities in which children can take part and how children's leisure time is spent. Therefore, adolescents may be more likely than children to discover and develop intrinsically motivated activities or passions. In contrast, while adults have autonomy, they tend to have more obligations than adolescents (e.g., education, work and career, family, etc.), which might restrict their ability to spend time on passions. Therefore, adolescence in particular may be a sensitive period for the development of passions.

Passions and Positive Adjustment

The recent empirical literature on passions indicates that there may be associations between passions and psychological adjustment or well-being. This evidence comes from multiple studies that have used adult and adolescent samples. These research studies have employed concurrent and longitudinal research designs, and collected quantitative and qualitative data.

Passions in Adults

Research on passions in adults has almost exclusively been conducted by Vallerand and his colleagues over the past decade (e.g., Carbonneau, Vallerand, Fernet, & Guay, 2008; Carbonneau, Vallerand, & Massicotte, 2010; Philippe, Vallerand, & Lavigne, 2009; Rousseau & Vallerand, 2008; Vallerand, Paquet, Philippe, & Charest, 2010). Their focus has been on examining relations between higher scores on passions (or combined high importance, enjoyment, and time spent on an activity) and psychological adjustment. Results from their studies indicate that passions are concurrently related to positive psychological adjustment (i.e., increased subjective well-being, decreased anxiety, and decreased depressive symptoms).

Vallerand and colleagues also have conducted longitudinal research studies. For example, Rousseau and Vallerand (2008) found that higher scores on passion for physical activity programs at Time 1 were related to higher life satisfaction over 5 weeks at Time 2 among a sample of 119 older adults (58.8% women, M_{age} = 65.9), controlling for Time 1 life satisfaction. Vallerand, Paquet, Philippe, and Charest (2010) sampled 258 nurses (91.5% women, M_{age} = 45.5), and found that higher Time 1 scores on passion for nursing as an occupation were related to increased work satisfaction and decreased work conflicts over 6 months at Time 2, controlling for Time 1 scores. Similarly, Carbonneau, Vallerand, and Massicotte (2010) found that higher

Time 1 scores on passion for yoga were related to increases in positive emotions over 3 months at Time 2 for 89 yoga-practicing adults (86.5% women, $M_{age} = 35.6$), controlling for Time 1 positive emotion scores. Carbonneau et al. (2010) also found that passions were related to decreases in negative emotions, state anxiety, and physical symptoms over the same time period. Finally, Philippe, Vallerand, and Lavigne (2009) found that adults' higher Time 1 passion scores on an activity were related to eudaimonic well-being or subjective vitality one year later at Time 2, controlling for Time 1 well-being. In summary, evidence from several longitudinal empirical studies with various adult samples indicates that passions are related to adjustment over time.

The research studies by Vallerand and colleagues all employed longitudinal designs, which provide advantages when compared to concurrent research designs. Nevertheless, the longitudinal studies discussed above examined only one direction of effects, that is, from passions to adjustment. However, it also may be that adults who are higher in adjustment measures (higher well-being, life satisfaction, positive affect, etc.) may be more likely to possess, seek out, or develop an activity they are passionate about. Carbonneau, Vallerand, Fernet, and Guay (2008) tested this direction of effects hypothesis. They measured passions at two time points using a sample of 494 teachers (76% women, $M_{age} = 43.1$). Results indicated that higher scores on passion for teaching as an occupation at Time 1 were related to increased work satisfaction and positive perceived student behaviours at Time 2, three months later, controlling for Time 1 work satisfaction and positive perceived student behaviours. Additionally, increases in passion scores were related to decreases in burnout. Importantly, the opposite relation was not significant; that is, higher scores on work satisfaction, burnout, and perceived student behaviours at Time 1 were not related to higher scores on passion for teaching scores over time. It appears that there may be a unidirectional relation from passion to later psychological adjustment.

Passions in Adolescence

Given that adolescence may be a sensitive period of the lifespan, the research on passions using the adult samples may not generalize to adolescents. That is, passions may show unique relations to adjustment among adolescents when compared to adults. Fortunately, researchers have measured both passions and adjustment among adolescent samples as well. For example, Vallerand and colleagues (2008) conducted a research study on passions using a sample of 67 Canadian high school athletes (water-polo and synchronized swimming, 67% girls, M_{age} = 16.1 years). Results replicated studies with adult samples in that higher passion scores were related to higher life satisfaction. Similarly, Gustaffson, Hassmen & Hassmen (2011) found that higher passion scores were related to higher reported positive affect and lower reported negative affect, using a Swedish sample of 258 competitive athletes (various sports, 36% girls, M_{age} = 17.3 years). Nevertheless, the samples used in the Vallerand et al. (2008) and Gustaffson et al. (2011) studies were athletes, so the results may not generalize to the broader population of adolescents. Further, both studies used concurrent research designs, in which the study variables were measured only at one time point.

A research study that examined associations between passions and adjustment in a representative sample of adolescents was conducted by Scales, Benson, and Roehlkepartain in 2011. A sample of 1817 adolescents aged 15 years was recruited through an online database. Passions were measured by asking participants whether they had a talent, interest, or hobby, whether it was more than just interesting or fun, and whether it was an activity for which they were happy, energized and passionate. The participants also were asked if the talent, interest, or hobby gave them joy and energy; was an important part of their life; and gave them real direction, purpose, or focus. Scores on passions were combined with two other related

characteristics into a composite score. The composite score included a relational opportunities index (supportive relationships and resources available to develop their interests), as well as an empowerment measure (self efficacy, belief in personal ability to solve community problems, history of political activity). Overall, adolescents with higher composite scores (high passions, relational opportunities, and empowerment) had higher scores on several indices of positive adjustment, including grades, leadership, purpose, mastery goals, school engagement, and higher prosocial values. Thus, the results of this study suggest that passions in adolescence may be broadly related to positive adjustment.

Some limitations should be noted for the Scales et al. (2011) study. One limitation that threatens the validity of the results was a significant degree of overlap between the predictor and outcome variables, for example between the predictor variable personal actions to develop talents (the degree to which youth participated in after-school programs) and the outcome variable leadership (being a leader of a group or organization); between the predictor variable community values youth (participants' perceptions that their community values youth) and the outcome variable civic engagement values (how important it is to participants that they contribute to society or are a leader in the community); and between the predictor variable personal actions to develop talents (taking initiative to develop talents and interests) and the outcome variable mastery goals (learning as much as participants can in school). Another limitation was the use of a concurrent research design, in which all scores were measured at one time point. This type of design does not allow for the testing of the direction of effects. Therefore, it is unknown whether combined passion, relational opportunities, and empowerment led to higher positive adjustment, or whether higher positive adjustment led to increases in passion, relational opportunities and empowerment. Another limitation of the study was that

passions was not studied in isolation, but was included with relational opportunities and empowerment. It is difficult to conclude whether the significant results were due to passions alone or to the other two factors.

Coatsworth, Palen, Sharp, and Ferrer-Wreder (2006) also conducted a research study on passions in adolescence. The researchers recruited a sample of 115 high school students (64% girls, M_{age} = 16.5) through schools and community organizations in a low-income neighbourhood. Passions were assessed by asking participants if they took part in activities (up to four) that represented who they were as a person (e.g., instrumental [e.g., paid work, studying, housework], sports, arts, reading, writing, religious, altruistic, clubs and scouts activities). Subjective well-being also was measured, and the composite score consisted of life satisfaction, high positive affect, and low negative affect. In addition, internal assets, or positive qualities of adolescents, were measured and these included commitment to learning, positive values, and social competencies. Overall, results indicated that passions accounted for a significant amount of variance in subjective well-being (9% variance), after controlling for demographic variables and general activity involvement. Additionally, passions accounted for a significant amount of variance in internal assets (7% variance). One limitation of this study was that the measure of passions did not assess whether adolescents spent a great deal of time and energy on the activity.

Froh and colleagues (2010) also examined the relation between adjustment and *absorption*, a concept similar to passions, with close to 2000 adolescents (ranging from grades 6 to 12). Their measure of absorption specifically assessed involvement in "hobbies (e.g., sports, reading, musical instruments, acting)" (p. 316). Absorption was concurrently related to a number of positive adjustment variables, including positive affect, life satisfaction, gratitude, self-esteem, and global happiness. Importantly, Froh and colleagues were the first to examine whether

absorption was related to adolescent positive adjustment longitudinally (i.e., three and six months after Time 1), controlling for Time 1 scores on adjustment. In all cases, higher scores on absorption at Time 1 did not significantly predict higher scores on adjustment over time. There were key differences, however, in their measure of absorption in comparison to the typical measure of passions. While Froh and colleagues assessed the involvement and importance of activities, they also included additional components that are not typically present in the assessment of passions, such as the general belief that having hobbies is important, whether participants experienced flow, and whether participants would rather not be doing something else. Further, the researchers did not assess how much time participants spent on their activities. It is unknown, therefore, whether the results of Froh et al.'s study would apply to a more typical measure of passions. The present study directly addressed this issue.

Research on Structured Activities and Engagement.

In only a handful of research studies, as reviewed above, have researchers examined passions in adolescence. The paucity of empirical studies specifically on passions in adolescence fails to provide strong evidence for the beneficial outcomes of passions. Fortunately, a great deal of research exists on youth activities that take place in structured contexts, or structured youth activities for short, which can help to inform our understanding of passions (Dawes & Larson, 2011). For example, Mahoney, Parente and Lord (2007) found that children's observed engagement in after-school programs was related to increased teacher-rated social competence and school motivation over a school year. Similarly, Shernoff (2010) found that middle school students' reports of psychological engagement in program activities mediated the association between participation and social competence. Additionally, Hansen and Larson (2007) found that high school students' intrinsic motivation in programs was related to overall positive experiences

in an activity, which was assessed across several domains including identity work; emotional regulation; team work and social skills; positive relationships; and adult network and social capital.

Definition of structured youth activities. Researchers appear to agree on a number of important criteria for what constitutes "structured activities," including activities that are: 1) supervised, led or coached by adults (e.g., youth group leader, basketball coach; Caldwell & Smith, 2006; Denault, Poulin & Pederson, 2009; Larson, 2000); 2) directed toward a goal (e.g., band performance, art project; Caldwell & Smith, 2006; Denault et al., 2009; Larson, 2000); 3) have a system of rules or constraints for behaviour (appropriate or inappropriate behaviour while engaging in activity; Denault et al., 2009; Larson, 2000; Urban, Lewin-Bizan, & Lerner, 2010); 4) have regular participation schedules (Denault et al., 2009); and 5) involve groups of similar-aged peers (Denault et al., 2009).

Structured youth activities and adjustment. Involvement in structured youth activities in adolescence has been linked to later positive adjustment across multiple domains (for a review, see Feldman & Matjakso, 2005). For example, Mahoney et al. (2005) conducted a review of the literature and found that involvement in structured youth activities was related to school achievement, interpersonal relations, and negative risk behaviours.

Differences between structured youth activities and passions. As is evident in the definition of structured youth activities, these types of activities are more narrow than the activities included in passions in several important ways, namely, the requirements of adult supervision, group settings, and activity directed toward a goal.

Adult supervision. One important criterion for structured youth activities that is not included in passions is that structured youth activities are led or supervised by an adult. This

criterion of adult supervision excludes many important activities that adolescents may engage in individually, without adult supervision (e.g., hobbies, reading, crafts, playing a musical instrument). Researchers may miss important outcomes of activities in adolescence if these types of individual activities are excluded from the measurement of youth activities.

The requirement of adult supervision also may affect how adolescents choose to take part in an activity. Previously, researchers have shown that adults have an influence on whether adolescents begin to take part in activities (Dawes & Larson, 2011). If an activity is led or supervised by an adult, it may restrict adolescents from being able to freely choose activities that are enjoyable to them, and may in turn undermine adolescents' interest and motivation (Caldwell & Smith, 2006). Alternatively, when adolescents exert choice over which activities to become involved in, it may facilitate more intrinsic motivation (Ryan & Deci, 2000).

Group setting. An important criterion for structured youth activities that is not included in the definition of passions is that structured activities should take place in a group setting with peers. This criterion excludes activities that adolescents may undertake on their own. Activities that adolescents spend time on individually, however, may be more likely to reflect their identity and values. Further, individual activities may be more likely to allow for self expression and creativity. In addition, adolescents may be influenced by their peers to take part in an activity (Benson, 2008), while activities that adolescents take part in individually may be less susceptible to peer influence.

In a research study conducted in 1997, Larson measured time spent alone among adolescents, and found that participants spent a significant proportion of their overall waking hours away from family and friends. Additionally, adolescents indicated having a high degree of choice in their activity when they were alone compared to other parts of their daily experience,

suggesting that solitude was purposeful and functional. Finally, time spent alone also showed positive relations to well-being (fewer problem behaviours, greater classroom adjustment, higher school grades, and fewer depressive symptoms).

Goal-directed. An important criterion for structured activities that is not included in passions is that the activities should be directed toward some goal, possibly a long-term goal (e.g., dance or music performance, competition, art project). This criterion excludes activities that are undertaken for their own sake, or simply for enjoyment. For instance, some activities that may not have a long-term goal may be reading, outdoor activities, art, or learning a subject or language. Passions are activities that are more likely to be intrinsically motivated (Scales et al., 2011; Vallerand, 2008). Intrinsic motivation refers to "doing an activity for the inherent satisfaction of the activity itself" (Ryan & Deci, 2000, p. 71); that is, the activity itself is the goal. Non-goal-directed activities may be more likely to be intrinsically motivated, or undertaken for their inherent enjoyment, and therefore more likely to be considered passions.

In summary, the strict definition of structured youth activities may exclude many important activities that adolescents are involved in outside of structured contexts. The definition of passions outlined in the current study, therefore, is more inclusive of different unstructured activities, including hobbies, individual sports, arts and crafts, and music. Therefore, passions may measure more diverse developmental processes or benefits.

The research on structured youth activities suggests beneficial outcomes for adolescents who take part in these activities. Nevertheless, it is unknown whether the structured context of these activities is the factor that leads to positive adjustment (Sharp et al., 2006). It is necessary, therefore, to measure involvement in both structured youth activities and other activities that may be less structured (individual activities, hobbies, etc.) in order to determine whether the positive

relations with adjustment variables are present for structured activities and unstructured activities.

Measures of Structured Activities. One major limitation of much of the research on structured activities in adolescence is that involvement in activities is often assessed by asking whether participants are involved in one type of activity or not, or how frequently they are involved in an activity (Busseri & Rose-Krasnor, 2010). Research studies that assess only involvement in structured activities may not generalize to passions in adolescence because passions have additional features than just involvement (i.e., a great deal of time spent on passion, importance). As mentioned earlier, in some research studies on structured youth activities, engagement in the activity also is measured. In this sense, then, engagement is similar to passions in that an adolescent should demonstrate enjoyment and consider the activity important. Although involvement in structured youth activities shows positive effects on adjustment in adolescence, engagement may be the underlying reason for these effects. In other words, when participants simply attend structured youth activities they may not experience any benefit (Mahoney, Larson, Eccles, & Lord, 2005).

The typical measurement of structured youth activities also is limited because there are likely large differences among adolescents enrolled in the same activity. Different participants will show varying degrees of being involved, invested, or engaged in the activity. For example, some adolescents may just be showing up, while others may be very motivated to invest effort or achieve goals. Others may be passionately devoted to an activity and see it as an important part of who they are. Similarly, adolescents may attend these activities for a variety of reasons, both internal and external. Some adolescents may participate due to mandatory service requirements, or because of the influence of parents, peers, or program leaders (Dawes & Larson, 2011).

Passions, on the other hand, should be activities that adolescents undertake for the inherent enjoyment present in the activities.

Summary: Passions and Adjustment

In summary, the literature reviewed above offers a great deal of empirical support for a link between passions and positive adjustment. Nevertheless, as mentioned above, there appear to be few longitudinal studies on passions and adjustment, which inhibits the ability for researchers to make statements about the possible direction of effects. Additionally, few studies on passions have used adolescent samples, so it is unknown whether the research on adults also applies to adolescents. Further, given the existing research indicating relations between structured activity involvement and positive adjustment, it is important to determine whether passions predict adjustment even when involvement in structured activities is controlled for in analyses. In other words, is the positive relation between passions and adjustment primarily due to the fact that many passions involve structured activities? The present study addressed these gaps in the literature.

Mediators of Passions and Adjustment

Perhaps because passions is a relatively recent concept in the literature, it appears that few researchers have attempted to examine possible mediators or underlying mechanisms for the observed relation between passions and adjustment. Nevertheless, it is important to understand why passions would show associations to adjustment in order to more fully understand the concept of passions, and to add support to the existing theories of passions. Two potential mediators of the relation between passions and adjustment are positive affect and unstructured leisure activities, and each factor will be described in turn below.

Passions and Positive Affect

To explain why positive affect might be a potential mediator, first I will describe the association between passions and positive affect, and then describe the association between positive affect and adjustment. Numerous researchers have predicted a relation between passions and positive affect, and define positive affect as "the extent to which a person feels enthusiastic, active, and alert," (Watson, Clark, & Tellegen, 1988, p. 1063). Positive affect includes feeling grateful/ gratitude, upbeat, appreciation, liking, amusement, awe, compassion, hope, interest, joy, pride, and sexual desire (Fredrickson & Losada, 2005). The more an activity is seen as a passion for an individual (i.e., very enjoyable, very important, and lots of time is spent on it), the more positive affect people should experience during (Benson & Scales, 2009; Fredricks et al., 2010) and after (Vallerand et al., 2003) spending time on the activity.

Numerous researchers have found significant associations between passions and positive affect in adult samples. Research conducted by Vallerand and colleagues on adult samples indicate that when people engage in passions, they report more positive emotions during and after the activity, and fewer negative emotions after the activity (Vallerand et al., 2003). The link between passions and positive affect also has been supported by evidence from longitudinal studies. As described earlier, in the study by Carbonneau et al. (2010), passion for yoga was related to increases in positive emotions, and decreases in negative emotions and state anxiety, over 3 months. Similarly, Philippe et al. (2009) found that adult passions were related to eudaimonic well-being or subjective vitality one year later.

Given the support for the link between passions and positive affect in adults, it is important to determine whether similar results would be found specifically for adolescent samples. Researchers have conducted studies with adolescents that have included both positive

affect and passions. As described earlier, Coatsworth et al. (2006) examined positive affect and the relation to passions. They found that passions accounted for a significant amount of variance (9%) in subjective well-being (life satisfaction, high positive affect, and low negative affect). The effect was still significant even after controlling for general activity involvement, as well as demographic variables (gender, age, family income). One limitation of the study, however, was that positive affect was not isolated from negative affect or life satisfaction, making it difficult to determine whether passions was related to positive affect alone, as opposed to the other two variables.

Bohnert, Richards, Kolmodin, and Lakin (2008) conducted another research study that assessed positive affect and activities that are similar to passions. The researchers recruited a sample of 246 African American adolescents between the ages of 10 and 15 (56% girls, M_{age} = 12.0). Using the experience sampling method, participants rated their current affect at different times during the day on dimensions of adjective pairs (e.g., *happy/ unhappy, friendly/ unfriendly,* etc.). Participants also reported whether they were engaging in structured (team sports, music or art lessons, religious groups) or unstructured activities (which were further split into *active* unstructured activities, or informal sports games, music or art practice, hobbies, and socializing; and *passive* unstructured activities, or watching television and hanging out). The types of activities that made up the categories of both *active structured* and *active unstructured* activities reveals that these categories may have been similar to passions. Results of the Bohnert et al. (2008) study indicated that participants reported the highest positive affect during active structured and active unstructured activities, and the lowest positive affect during passive unstructured activities. Thus, there appears to be an association between passions or passions-type activities and positive affect in adolescence.

Qualitative designs. Researchers have conducted studies on passions and positive affect in adolescence using qualitative methods, such as in a study by Fredericks, Alfeld, and Eccles (2010). The researchers conducted in-depth interviews to examine passions among both talented and academically gifted high school students. The talent sample was 41 (63% girls) participants from grades 9 to 12 who were highly involved in non-academic domains, some in more than one activity (e.g., sports, music, art, dance). The academically gifted sample of 34 high school and college students (59% women, age range 17 to 21), in contrast, had very high grade point averages. Participants described feeling emotional release from being involved in their activity. For example, one girl described her passionate activity of playing the violin: "I get my self-satisfaction out of playing, even if I'm not playing well . . . I love to play. . . . When I want to be alone I play my violin. When I'm feeling depressed I play my violin. And even when I'm . . . feeling really happy I'll play my violin and I'll feel happier," (p. 23). Another participant reported using the activity as an escape from stressors of daily life.

Oliver and Venneville (2011) replicated the results of Fredricks et al. (2010) using a qualitative research design, and recruited a sample of six high-achieving Australian science students (15 to 17 years of age). In-depth interviews were conducted to determine how participants experienced a passion for science during a science summer camp. The authors also found that emotion emerged as a salient theme for students' descriptions of their passion for science. That is, participants used strong emotion words in their descriptions, including intense emotions like excitement, fun, love, and rushes of adrenalin.

Structured activities and positive affect. As outlined earlier, there appears to be few studies that have examined positive affect and passions in adolescence. In contrast, numerous research studies have been conducted on structured youth activities and positive affect. Results

of these studies suggest that structured activities may provide opportunities for experiencing increased positive affect.

Vandell and colleagues (2005) conducted an experience sampling study on adolescents' daily experience across one week. Vandell et al. focused specifically on the after-school hours and compared participants' experience both inside and outside of after-school programs, a category of structured youth activities. A sample of 191 middle school students (48% girls) were recruited, including a group of participants involved in after-school programs, as well as a comparison group of adolescents who did not participate in after-school programs. Participants recorded what they were doing, their level of intrinsic motivation toward the activity (their levels of *enjoyment*, *choice* and *interest*), and how important the activity was to them. Participants also reported on their current feeling states with several emotion terms including positive emotions (*happy*, *proud*, *excited*, *relaxed*), as well as various negative emotion terms.

Vandell and colleagues (2005) first examined data from the participants who took part in programs only. Participants reported significantly higher levels of positive emotion while engaged in the program than when not currently engaged in the program. In contrast, there were no differences for negative emotions. Additionally, higher scores of effort, importance, and intrinsic motivation (enjoyment, choice, and interest) were reported when engaged in the program versus when not currently engaged in the program. This was an important finding because effort, importance, and intrinsic motivation are similar to the components that make up passions.

For the second set of analyses, Vandell et al. (2005) compared participants who took part in programs to the group who did not take part in programs. Results indicated no differences between the two groups in positive emotions when participants were not engaged in after-school

programs. Therefore, the researchers concluded that the relations to positive and negative emotions for after-school programs were not due to differences between adolescents who were involved in the activities versus those who were not involved.

Taken together, results of the Vandell et al. (2005) study suggest that adolescents experience more positive affect when engaged in active uses of their time. A few limitations should be noted for the study, however. A concurrent design was used and as a result, bidirectional relations could not be assessed. Additionally, researchers failed to measure important criteria of passions, such as liking or enjoyment of an activity, importance, and amount of time or effort spent on it.

Positive affect and positive adjustment. Positive affect is an important variable for researchers to investigate in studies of passions because positive affect or emotions might be related to positive adjustment. The broaden and build theory predicts that positive emotions (e.g., interest, happiness, joy, romantic love, etc.) should be related to positive adjustment (Fredrickson, 2004). According to the theory, the experience of such positive emotions creates a broadening effect on habitual modes of thinking and acting, or a tendency to have a widened array of thoughts and actions that come to mind. The theory further states that the broadening effect of positive emotions should build a wide range of personal resources, including effective coping strategies, as well as cognitive, social, and physical resources (Fredrickson, 2004). These strengthened resources should lead to increases in well-being over time (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008). One specific psychological resource that should be strengthened through frequent positive emotions is psychological resilience, or the ability to bounce back from negative experiences.

Empirical support for the broaden and build theory comes from results indicating that people who are more likely to experience or express positive emotions than others also are more likely to have higher optimism, tranquility, ego resilience, mental health, and close relationship quality (Fredrickson et al., 2008). In experimental studies, participants who were induced with specific positive emotions (e.g., watching film clips, Fredrickson & Branigan, 2005; presenting with a gift of candy, Wadlinger & Isaacowitz, 2006) reported a widened scope of visual attention, a broadened range of desired actions, and more openness to new experiences and critical feedback (Fredrickson et al., 2008) than participants who were not induced with positive emotions. Researchers have also found empirical support for longitudinal links between positive affect and positive adjustment over time (Fredrickson, Tugade, Waugh, & Larkin, 2003; Waugh & Fredrickson, 2006). Nevertheless, much of the evidence supporting the broaden and build theory comes from adult samples (Diamond & Aspinwall, 2003).

Positive affect as a mediator. Given the links described above between passions and positive affect, and between positive affect and adjustment, researchers have proposed that positive emotions may be a mediator in the link between passions and psychological adjustment (Phillipe, Vallerand, Houlfort, Lavigne, & Donahue, 2010; Vallerand, 2008). That is, increased positive affect as a result of engaging in passions may be the reason why higher passion scores are related to higher psychological adjustment. Thus, the cumulative effect of positive emotions during passionate activities over large amounts of time should lead to positive adjustment (Vallerand, 2008).

Researchers have recently tested this meditation hypothesis empirically. Philippe, Vallerand, Houlfort, Lavigne, and Donahue (2010) conducted a series of studies with different passions activities, and measured relationship quality in each study as an indicator of

psychological adjustment. Relationship quality was only measured in the context of the passions under study (i.e., if work was the passion being measured, relationship quality of co-workers also was measured). Results of the studies indicated that positive emotion was a significant mediator between passions and quality of interpersonal relationships. Results still held after controlling for trait extraversion, and both concurrent and longitudinal designs were used. One sample in their study was 160 high school athletes (38% girls, M_{age} 14.5), suggesting that the results were not limited only to adult participants. Thus, this study provides empirical support for positive affect as a mediator between passions and positive adjustment. Nevertheless, one limitation of the study by Philippe et al. is that the researchers looked at relationship quality only in the context of the passions under study. Thus, an important question that remains unexamined is whether positive emotions would be a mediator between passions and other indicators of psychological adjustment, such as higher psychological well-being, optimism, or purpose in life.

Unstructured Leisure Activities as a Mediator

Another possible mediator of the relation between passions and adjustment may be unstructured leisure activities, which refers to unstructured, unsupervised activities in which adolescents typically engage (e.g., hanging out, socializing). Passions and unstructured leisure activities may be negatively related, such that adolescents who spend a great deal of time on a passionate activity may be less likely to engage in unstructured leisure activities.

Unstructured leisure activities also may be related to adjustment, or more specifically, to harmful risk-taking or antisocial behaviour. Routine activity theory helps to explain why unstructured leisure activities may be more likely to promote negative risk-taking (Osgood, Anderson & Schaffer, 2005). The theory is focused on the assumption of situation motivation, where motivation for risk-taking may be inherent in the situation, not the adolescent. Further,

negative risk-taking is more likely to be spontaneous rather than planned in advance. The behaviour may arise as a result of multiple conditions coming together in a situation, creating an opportunity for negative risk-taking. Certain situations are more likely to create desire for negative risk-taking, but these desires are usually short-lived. According to the theory, three different conditions are most likely to produce negative risk-taking: socializing with peers, lack of structure, and absence of adult supervision.

Socializing with peers is related to negative risk-taking because many negative risk-taking behaviours occur in groups (Osgood et al., 2005). When adolescents form groups, negative risk taking behaviour is easier. Peers provide resources that may facilitate negative risk-taking (drugs, weapons), and larger numbers in a group helps to reduce the danger in antisocial acts (stealing, fighting; Osgood et al., 2005). Additionally, negative risk-taking behaviours may be more rewarding with the presence of peers for several reasons: First, peers may create symbolic rewards that are often part of negative risk-taking behaviour (Osgood et al., 2005); second, they can act as an appreciative audience to witness the acts; and third, they may help bolster a social identity of the risk-taker as brave, adventurous, and tough (Osgood et al., 2005).

Lack of structure for adolescents' leisure activities refers to an absence of restrictions or an agenda on how time is spent (Osgood et al., 2005). This type of setting may be more likely to result in negative risk-taking behaviour, simply by the fact that nothing else occupies adolescents' time acting as an obstacle to adolescents taking up risk-taking (Osgood et al., 2005). To the adolescent, negative risk-taking might less likely be seen as an attractive diversion in these instances.

Finally, lack of adult supervision can lead to a higher likelihood of negative risk-taking because adults are often obliged to intervene if risk-taking behaviour occurs (Osgood et al.,

2005). A combination of all three of these conditions, or presence of peers, lack of structure, and absence of adult supervision, may be more likely to lead to negative risk-taking than the presence of any single factor alone (Osgood et al., 2005).

Empirical evidence in support of the relationship between unstructured leisure activities and negative risk-taking comes from a research study by Mahoney and Stattin (2000). The researchers found that Swedish adolescents (M_{age} = 14) who were involved in unstructured leisure activities also reported more frequent delinquent behaviour when compared to adolescents who were involved in structured activities, or who were involved in both structured and unstructured activities. Therefore, given the plausible association between passions and lower leisure activities, and the empirical support linking leisure activities and higher negative risk-taking, it is likely that leisure activities may be an underlying mechanism for the association between passions and negative risk taking.

The Present Study

The purpose of the current research study was to investigate passions among an adolescent sample. The current study addressed several important gaps in the literature on passions in adolescence.

Passions and adjustment. Few studies to date have measured both passions and adjustment with adolescents using a longitudinal design, so it is unknown how passions are related to adjustment over time. The handful of previous studies that have examined passions among adolescents longitudinally failed to control for initial levels of adjustment. Therefore, it is difficult to determine the direction of effects among these variables. The current study addressed this gap in the literature by examining passions and psychological adjustment (psychological well-being, optimism, purpose, and risk-taking) longitudinally in an adolescent sample.

Mediator between passions and adjustment. A gap in the current literature is a lack of research studies on underlying mechanisms for the relations between passions and positive adjustment. One exception would be the research study by Philippe et al. (2010), described above with positive affect tested as a mediator and relationship quality measured as adjustment. Nevertheless, more research needs to be done on positive affect to determine its possible mediation effects. Additionally, other indicators of positive adjustment (psychological well-being, optimism, etc.) need to be used in research on mediators of passions. Finally, one possible mediator that has not previously been examined is unstructured leisure activities.

In the current study, I distinguished between positive affect in general (measured as positive mood) and positive affect as a component of passions (enjoyment of passions). Positive affect as a component of passions was restricted to the context of the activity itself, whereas positive mood was a general positive affect that was not necessarily restricted to any context. Additionally, positive affect as a component of passions was only one component that made up the measurement of passions in the current study, where importance and frequency also were used to provide a full measurement of the passions construct.

Gender. Previous research studies have shown mixed results for gender differences in passions. For example, in a previous study identifying adolescents' passions, boys were more likely to identify athletics while girls were more likely to select learning as their passions (Benson, 2008). Some studies have found gender differences in structured youth activities, with boys more likely than girls to report participating in active activities and team sports (Sharp et al., 2006). Additionally, Bohnert and colleagues (2008) found that boys were more involved than girls in passive unstructured activities (watching television and hanging out). Alternatively, some research studies have failed to find gender differences in passions in adults (Vallerand et al.,

2007) and adolescents (Vallerand et al., 2008), as well as for structured youth activities (Hansen, Skorupski, & Arrington, 2010). Given these findings, I felt it was important to include gender as a potential moderator of the results in the present study.

Socioeconomic status (SES). Despite including SES as a variable of interest in studies on passions and structured youth activities, researchers have failed to find differences based on SES (Hansen, Larson, & Dworkin, 2003; Hansen et al., 2010). Researchers argue that demographic variables such as the availability and affordability of activities, the presence of resources, and availability of competent adults may affect involvement in different activities (Mahoney et al., 2005). Therefore, some researchers have included SES (parent education, family income) as a control variable in studies of passions (Scales et al., 2011; Coatsworth et al., 2006), structured youth activities (Larson, Hansen, & Moneta, 2006) and school engagement (Feldman & Matjasko, 2005), and it was controlled in the current study as well.

Academic marks. Academic marks was included as a covariate in all analyses in the present study because some activities may be limited by participants' academic performance (e.g., for some schools, students can only play school sports if they maintain a B-average in their classes). In order to eliminate this possible confound for involvement in passions or structured activities, all analyses controlled for academic marks.

The specific research questions I addressed in the present study involved:

Research Question 1. Are the patterns of associations among passions and adjustment consistent across gender and grade? Previous researchers have found some evidence for gender differences in passions and structured youth activities, while other researchers have failed to find these effects. Therefore, it appears that gender may be an important factor to consider in analyses on passions, so I included gender as a possible moderator

in all analyses. I tested whether the hypothesized patterns of results for passions and adjustment differed between boys and girls.

Additionally, it is possible that patterns of involvement in passions may change across the high school grades when adolescents become more involved in other activities, such as part-time work. Therefore, I tested whether the pattern of results among the study variables would differ between grades 10, 11, and 12. Previous researchers have not yet studied passions in adolescence using a longitudinal design, so this question is exploratory.

Research Question 2. Do higher scores on passions predict more positive adjustment over time, even when controlling for structured activity involvement? I tested whether passions predicts adjustment over time against an alternative possibility that better adjusted adolescents (those with higher psychological well-being, fewer problem behaviours, etc.) simply may be more likely to have passions. Although the direction of effects for passions and adjustment has not yet been tested in adolescence, I hypothesized that passions would be a significant predictor of adjustment (psychological well-being, optimism, purpose, and low negative risk-taking) over time, but that adjustment would not predict passions over time. My hypothesis was informed by previous work by Carbonneau et al. (2008), where they found a similar result in adults.

Four indicators of adjustment were used in the present study: psychological well-being, optimism, purpose, and risk-taking. In previous studies of passions, adjustment has been broadly defined to include many measures of intra- and interpersonal well-being. For instance, optimism has been measured in several research studies testing the broaden and build theory (Fredrickson et al., 2003; 2008). Additionally, purpose in life, or *purpose* for short, has been included as an indicator of adjustment in previous studies on passions (Scales et al., 2011). Therefore, both

optimism and purpose were included as variables in the current study. Finally, few research studies have examined relations between passions and risk-taking behaviours, a gap in the literature addressed in the current study.

I included in Research Question 2 a test of an association between passions and adjustment even with structured activity involvement statistically accounted for. Previous researchers have identified positive effects of involvement in structured youth activities (Mahoney et al., 2005), which are similar but not identical to passions. Nevertheless, the definitions of passions provided by previous researchers do not include a structured context as a criterion for passions. Therefore, given the empirical evidence on passions indicating significant relations to positive adjustment, I predicted that passions and adjustment would still be significantly related even after controlling for structured activity involvement.

Research Question 3. What are the underlying mechanisms of the relation between passions and adjustment? I predicted that two variables would mediate the expected relation between passions and adjustment: positive affect and unstructured leisure activities. Positive affect was included as a mediator because previous researchers have found associations between passions and positive affect (Carbonneau et al., 2008; Vallerand et al., 2003). Additionally, the broaden and build theory predicts a link between positive affect and positive adjustment (Fredrickson, 2004). Therefore, I predicted that adolescents who were higher in passions would show higher positive mood over time, and that higher positive mood would predict higher positive adjustment over time.

A second potential mediator that was included in the current study was unstructured leisure activities, because higher scores on passions should be related to lower unstructured leisure activity involvement. Additionally, previous researchers have found associations between

unstructured leisure activity involvement and higher negative risk-taking behaviour, a measure of adjustment (Mahoney & Stattin, 2000). Therefore, the current study tested the hypothesis that higher scores on passions would predict *lower* unstructured leisure activity involvement over time, and that lower scores on unstructured leisure activities would, in turn, predict *lower* negative risk-taking behaviour.

Methods

Sample

The data used in the analyses for the present study was taken from a larger longitudinal project examining youth lifestyle choices in adolescence, involving five waves of survey data from 2003 to 2008. Students from eight high schools encompassing a school district in Ontario, Canada took part in the study. The overall participation rate (the percentage of all students enrolled in the eight participating high schools who completed the survey on the days of survey administration) ranged from 83 to 86% across all the waves of data collection; non-participation was due to student absenteeism (average of 13.5%), parental refusal (average of .06%), or student refusal (average of 1.4%). Student absenteeism from class was due to illness, a co-op placement, a free period, or involvement in another school activity. Consistent with the broader Canadian population (Statistics Canada, 2001), 92.5% of the participants were born in Canada and the most common ethnic backgrounds reported other than Canadian were Italian (32%), French (17%), British (16%), and German (11%). Data on socioeconomic status indicated mean levels of education for mothers and fathers falling between "some college, university or apprenticeship program" and "completed a college/apprenticeship/technical diploma." Further, 71% of the respondents reported living with both birth parents, 14% with one birth parent and a

stepparent, 15% with one birth parent (mother or father only), and the remainder with other guardians (e.g., other relatives, foster parents, etc).

The analysis for the present study involved a cohort of 2270 students (48.7% girls) who completed the survey three times, in 2006, 2007, and 2008 when they were in grades 10, 11, and 12, respectively. This cohort was selected from the larger sample because the assessment of passions was measured only in 2006, 2007, and 2008.

Procedure

For the larger study, active informed assent was obtained from the adolescent participants (see Appendix E for participant assent form). Parents were provided with written correspondence mailed to each student's home prior to the survey administration outlining the study (see Appendix C); this letter indicated that parents could request that their adolescent not participate in the study. An automated phone message about the study also was left at each student's home phone number. This procedure was approved by the participating school board and the University Research Ethics Board. A passive parental consent procedure was used for collecting data for the study to ensure a representative sample (see Weinberger, Tublin, Ford, & Feldman, 1990; parent consent form included in Appendix D). Weinberger et al. (1990) suggest that if active parental consent procedures are used, literate parents are more likely to read and return consent forms than illiterate parents. Further, parents with good relationships with their adolescents also are more likely to read and complete consents, resulting in an overrepresentation of well-functioning adolescents and families. At all time periods, the questionnaire was administered to students in classrooms by trained research staff. Students were informed that their responses were completely confidential.

Measures

The study measures are described below (see Appendix A for scale items). Each measure, other than demographics, was assessed in grades 10, 11, and 12.

Demographics. Parental education was assessed separately for mother and father, and participants were asked to report the highest level of education their parent completed. Possible responses ranged from (1= *did not finish high school* to 6 = *professional degree*). An average parental education score was computed using both parents, and higher scores indicated higher parental education. Participants' age was assessed and possible values ranged from *13* to *18 or over*. Sex (*male* or *female*) also was assessed.

Academic achievement: A self-report measure of average grades received in school was used to assess academic achievement. Participants responded to the following question: What marks do you usually get in school? In response to this question, participants chose among the following six options A+ (90% - 100%), A (80% - 89%), B (70% - 79%), C (60% - 69%), D (50 – 59%), or below 50%.

Passions. The passions scale in the present study used 3 items assessing the extent to which participants who had a passion enjoyed spending time on the passion (enjoyment), how important it was to them (importance), and how frequently they engaged in it (frequency). First, participants were asked if they had passions or not ("Do you have a hobby, talent, or special interest [or activity])?"; participants who did not report having passions had the option of selecting *I don't have a hobby, talent, special interest* for each of the frequency, importance, and enjoyment questions. Next, frequency was assessed with the item, "How often do you work on your hobby, talent, or special interest (or activity)?", and possible responses ranged from 0 = *never* to 4 = *every day*. Importance was assessed with the item, "How important is the hobby,

talent, or special interest (or activity) to you?", and possible responses ranged from 0 = *not at all important* to 3 = *very important.* Finally, enjoyment was assessed with the item, "How often do you enjoy working on your hobby, talent, special interest (or activity)?", and possible responses ranged from 0 = *never* to 4 = *every time.* The importance item was multiplied by a constant (1.33) to rescale it to match the other two items, creating three items rated on a 5-point scale (0 to 4). For each of the three items, I recoded a response of *I don't have a hobby, talent, special interest* to the lowest anchor score for that question (i.e., *never* or *not at all important*), thus including these participants in all analyses. Note that less than 1% of the participants who reported having passions responded with *never* or *not at all important* for the three passions items, so there was almost no overlap in the passions scores for participants who had passions versus those without passions. The three passions items were averaged to produce a composite passions score, where higher scores indicated higher passions (higher importance, enjoyment, and frequency). A principal components factor analysis was conducted using the three passions items, and a single factor was extracted for all waves.

Psychological well-being. Psychological well-being was a composite measure of self-esteem, social anxiety-related symptoms, and daily hassles. Global self esteem was assessed using 10 items adapted from the Rosenberg Self-Esteem Scale (Rosenberg, 1965). An example item was "I take a positive attitude toward myself". Participants responded to the items on a 5-point scale from 0 = *strongly disagree* to 4 = *strongly agree.* Scores were averaged, and higher scores indicate higher self esteem. Cronbach's alphas for the current study were .90, .88, and .87 for grades 10, 11, and 12 respectively.

Social anxiety-related symptoms were assessed using 14 items taken from the Social Anxiety-Related Symptoms Scale (Ginsberg, LaGreca, & Silverman, 1998) which assessed the

degree participants felt anxious or uncomfortable in social situations in general. An example item was, "I'm quiet when I'm with a group of people my age," and participants responded on a 4-point scale from 0 = *almost never or never* to 3 = *almost always or always*. A composite social anxiety variable was computed using an average of the 14 items, and higher scores indicated less social anxiety symptoms. Cronbach's alphas for the current study were .92, .93, and .95 for grades 10, 11, and 12, respectively.

Daily hassles were assessed using a 20-item scale that assessed how frequently participants experienced common daily hassles (e.g., friends, peers, school, etc.) in general. An example item was "problems with friends," and participants responded on a 3-point scale from 0 = *often bothers me* to 2 = *almost never bothers me*. Scores were averaged and higher scores indicated less frequent daily hassles. Cronbach's alphas for the current study were .88, .90, and .92 for grades 10, 11, and 12, respectively.

A principal components factor analysis was conducted for psychological well-being using the average self-esteem, social anxiety, and daily hassles scores, and a single factor was extracted for all waves. The three scores were combined into a single psychological well-being measure, where higher scores indicated higher psychological well-being (higher self-esteem, lower social anxiety, fewer daily hassles).

Purpose. Purpose in life was assessed with the item "I feel that my life has a sense of purpose", and participants responded on a 4-point scale from 0 = *almost never or never* to 3 = *almost always or always*. Higher scores on the item indicated higher purpose.

Optimism. Optimism was assessed using items adapted from the Life Optimism Test (Goodman, Knight, & Durant, 1997). The scale consisted of two items (e.g., "I feel good about

my future") rated on a 4-point scale from 0 = *almost never or never* to 3 = *almost always or always*. Scores were averaged, and higher scores indicated higher optimism.

Positive mood. Positive mood was assessed using four items from the mood subscale of the Revised Dimensions of Temperament Scale (Windle & Lerner, 1986). The measure assessed the degree to which participants have a generally positive mood. An example item is "My mood is generally cheerful," and participants responded on a four-point frequency scale from 0 = *almost never or never* to 3 = *almost always or always*. Scores were averaged, and higher scores indicated more positive mood. Cronbach's alphas for the current study were .87, .73, and .86 for grades 10, 11, and 12, respectively.

Structured activities. Four items assessed the frequency with which participants were involved in clubs and sports inside and outside of school in the last month. Participants responded on a 5-point frequency scale from 0 = *never* to 4 = *every day*. Scores were averaged, and higher scores indicated more frequent structured activity participation. Cronbach's alphas for the current study were .69, .75, and .80 for grades 10, 11, and 12, respectively.

Unstructured leisure activities. Unstructured leisure activities was a composite variable consisting of hanging out, dating, video game use, internet game use, and skipping class. Two items assessed the frequency with which participants engaged in hanging out and dating, rated on a 5-point frequency scale from 0 = *never* to 4 = *every day*. Four items asked assessed the amount of time participants played both internet and video games (1 question for weekdays, 1 question for weekends), and participants responded on a 5-point scale from 0 = *never* to 4 = *5 or more hours*. The question assessing skipping class asked participants, "During a typical month of school, how often do you skip class?", and participants responded on a 5-point frequency scale from 0 = *never* to 4 = *6 or more times.* Scores were averaged across all items, and higher scores

indicated more unstructured leisure activity involvement. Given the variety of unstructured activities, there was no expectation that the responses would be highly intercorrelated (i.e., an adolescent frequently skipping class may not also frequently play video games), and therefore an assessment of internal consistency across the items was not conducted (see Huizinga and Elliott, 1986 for a similar point with delinquent behaviors)

Negative risk-taking. Negative risk-taking was a composite measure composed of alcohol, smoking, marijuana, and delinquency. Alcohol frequency was assessed with the question, "How often do you go drinking or have a drink?" with possible responses ranging from 1 = *never* to 8 = *every day*. Alcohol amount was assessed with the question, "On average, when you are drinking alcohol, about how many drinks do you have?" with possible responses ranging from 1 = *less than 1 drink* to 6 = *over 10 drinks*. Smoking was assessed for participants who reported ever smoking a full cigarette. Participants were asked, "How many cigarettes do you usually smoke each day?" and possible responses ranged from 1 = *I no longer smoke* to 8 = *more than a pack*. Participants who reported never smoking a full cigarette were assigned the lowest score (1 = *I no longer smoke*).

Marijuana was assessed with the item, "In the past 12 months, how often did you use the following substances or engage in the following behaviours?: Hash, marijuana (weed, joint)." Participants responded on a 6-point frequency scale from 1 = *never* to 6 = *every day*. Delinquency was assessed using 8 items, and participants were asked how often they had committed 8 different behaviours (e.g., "joined a gang") in the last 12 months. Participants responded on a 5-point frequency scale from 1 = *never* to 4 = *more than 5 times*. A principal components factor analysis was conducted using the alcohol frequency, alcohol use, smoking, marijuana items, and the average delinquency scores, and a single factor was extracted for all

waves. Scores on all negative risk-taking measures (alcohol, smoking, marijuana, and delinquency) were averaged and combined into a single negative risk-taking composite, and higher scores indicated more negative risk-taking. Cronbach's alphas for the current study were .76, .75, and .72 for grades 10, 11, and 12, respectively.

Missing Data

There were missing data because some students did not finish the entire questionnaire. To ensure that any missing data were missing at random, we included three versions of the survey at each time period so that the same scales were not always near the end of the survey. For multi-item scales, composite scores were computed for participants who responded to at least 50% of the relevant items. For respondents who did not give a sufficient number of responses within a multi-item scale, missing values within each wave were imputed using the EM (expectation-maximum) algorithm. EM is an iterative maximum-likelihood procedure in which a cycle of calculating means and covariances followed by data imputation is repeated until a stable set of estimated missing values is reached (Schafer & Graham, 2002). In total, 6.3% of the data were imputed. This percentage of imputed data is consistent with other longitudinal survey studies (e.g., Ciarrochi, Leeson, & Heaven, 2009; Feldman, Masyn, & Conger, 2009; Hyde & Petersen, 2009). A second source of missing data occurred across waves due to absenteeism. As missing data were not dependent on the values of the study measures, it is reasonable to assume that these data are missing at random (Little & Rubin, 2002; Schafer & Graham, 2002). In path analyses, these missing data were estimated in AMOS 19.0 using the full information maximum likelihood estimation method (Arbuckle and Wothke, 1999; Schafer and Graham, 2002).

Plan of Analysis

Data were screened for outliers, as well as skewness and kurtosis for each variable. The primary statistical analyses were carried out with AMOS 19.0. To disentangle associations among the variables of interest, path analyses were conducted to examine associations among all the variables. A conservative approach to the analyses was adopted by including only manifest variables, as a fully latent approach was more difficult to estimate with the number of variables included in my study. Given the exploratory nature of the study, an alpha of .05 was used. Overall model fit was evaluated using the comparative fit index (CFI), and the root mean squared error of approximation (RMSEA, Bentler 1995). As recommended by Hu and Bentler (1999), CFI values greater than .95 and RMSEA's less than .06 (simultaneously) were used as the criteria for a well-specified or close-fitting model. Separate path models were tested for each of the adjustment outcome variables: optimism, purpose, psychological well-being, and negative risk-taking. I included auto-regressive paths and concurrent associations among passions, structured activities, and the outcome variables within each grade. Parental education and academic marks were controlled in all analyses as covariates, with correlations specified between the covariates and each variable in grade 10. For grades 11 and 12, paths were estimated between both covariates (parental education, and academic marks) and each variable.

I first tested whether the pattern of results were invariant across gender. Four initial models were created corresponding to each of the four adjustment variables (optimism, purpose, psychological well-being, and negative risk-taking). Invariance was tested by comparing two pairs of models for each outcome variable: one model in which all cross-lag paths were constrained to be equal across gender, and one unconstrained model in which all the structural paths were free to vary. Chi-square difference tests of relative fit were used to compare the pairs

of models. Next, I also tested whether the pattern of results were invariant across grade. A similar set of analyses to that of gender was conducted with models constrained across grade.

If passions significantly predicted any outcomes, a second set of analyses tested each outcome with the hypothesized mediators (positive mood and unstructured leisure activities) simultaneously added to each of the separate path models. I examined the cross-lag paths in each of the mediation models to determine whether passions was associated with the mediator variables (positive mood and unstructured leisure activities) *and* whether the mediator variables were associated with the outcome variables (optimism, purpose, and negative risk-taking). I only examined the predicted paths between mediators and outcomes, that is between the mediator of positive mood and outcome variables optimism, purpose, and psychological well-being, as well as between the mediator unstructured leisure activities and outcome variable negative risk-taking. The indirect effect values and corresponding confidence intervals were calculated using bias-corrected bootstraps using 2000 bootstrap samples. Significant mediation effects were determined if the indirect effects were significantly different from 0, indicated by a 90% confidence interval that did not contain zero.

Results

Preliminary Analyses

Participants reporting having passions ("Do you have a hobby, talent, special interest or activity?") in grade 10 were $n = 1408$ (85%) yes, and $n = 239$ (15%) no. In grade 11, $n = 1141$ (78%) participants reported having passions, while $n = 290$ (20%) did not have any passions. In grade 12, $n = 820$ (74%) participants reported having passions, while $n = 290$ (26%) did not have any passions. Cross-tabs analyses revealed that these grade differences were all significantly different from expected, $ps < .001$. Participants with passions reported significantly higher

academic marks in grade 10 than participants who did not have passions, $p < .001$, partial $\eta^2 =$ 1%. The two groups did not differ in gender, age, or parent education in grade 10. In grade 11 and 12, there were no significant differences between the two groups in gender, age, parent education, or academic marks.

There were significant gender differences for most of the study variables across each grade. In grade 10, girls showed significantly higher positive mood than boys, and boys had significantly higher passions, optimism, psychological well-being, negative risk-taking, and unstructured activity involvement than girls, p's $< .001$, partial η^2 ranged from 1 to 4%. In grade 11, girls showed significantly higher positive mood than boys, and boys had significantly higher passions, structured activity involvement, psychological well-being, negative risk-taking, and unstructured activity involvement than girls, p's $< .001$, partial η^2 ranged from 1 to 5%. In grade 12, girls showed significantly higher positive mood and structured activity involvement than boys, and boys showed significantly higher negative risk-taking and unstructured activity involvement than girls, p's $< .001$, partial η^2 ranged from 1 to 7%.

I also tested for differences in the study variables at grade 10 due to attrition ($p < .001$). I tested for differences between 3 groups of participants who completed the study at grade 10: participants who 1) were present at both subsequent waves of data collection, 2) were present at only one subsequent wave of data collection but missing at a subsequent additional wave (either grade 11 or 12), and 3) dropped out of the study (missing at both grades 11 and 12). Participants who dropped out of the study after grade 10 showed significantly lower purpose, and significantly higher negative risk-taking and unstructured activity involvement than their peers in the two other groups, p's $< .001$, partial η^2 ranged from 1 to 5%.

All variables displayed normal or approximately normal distributions[1]. Means and standard deviations of the variables are presented in Table 1. Table 2 outlines the intercorrelations among all variables separately for girls and boys. Passions showed the strongest associations with structured activities, with values ranging from $r = .16$ to .41, and the correlations were higher in magnitude in general for girls compared to boys. In contrast, many of the other study variables showed lower magnitude associations with passions, although the correlations were still significant overall. Structured activities had higher stability values compared to the other study variables, including passions, with correlations for structured activities ranging from $r = .51$ to .70, and correlations for passions ranging from $r = .24$ to .38. Thus, it appears that participants' combined frequency, importance, and enjoyment of their passions does not remain highly stable over time, in contrast to the stability of how frequently participants are involved in structured activities. Stability values also were higher in magnitude in general for girls compared to boys.

In all path models for both boys and girls, higher parental education was associated with lower negative risk-taking in grade 10, as well as greater optimism, well-being, and purpose in grade 10. Higher parental education also was significantly related to greater structured activities and passions in grades 10 and 11 for girls, and in grades 11 and 12 for boys. Finally, for boys, higher parental education was related to less purpose in grade 11, and higher mood scores in grade 10.

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[1]The only study variable that did not display a normal distribution was passions. Passions had a bimodal distribution, with 13% to 26% of participants reporting no passions and thus scoring at the bottom of the passions scale (low importance, low enjoyment, and low frequency), and many other participants clustering more at the top of the scale with higher passion scores. Several linear transformations were performed that did not result in a more normal distribution. I recoded passions into a categorical variable to represent a normal distribution and re-ran all of the analyses. All of the effects were the same in all of the models, with the exception that in the mediation model for optimism, the direct effect from passions to optimism dropped from significance to a trend level ($p = .06$), although the indirect path was still significant, indicating mediation. Given the similar pattern of findings across both analyses, the original passions variable was used for all analyses to retain variability in the data.

Primary Analyses

Research Question 1: Are the patterns of associations among passions and adjustment consistent across gender and grade? None of the tests of invariance for gender were significant across any of the four models of optimism, purpose, psychological well-being, and negative risk-taking. The chi-square difference tests of relative fit indicated that the unconstrained models did not provide a significantly better fit (all p's > .05) than the constrained model, suggesting the patterns of results were invariant across gender. Table 3 displays the chi-square difference test results for the four initial models. As the constrained models were the most parsimonious models, all further analyses were based on these constrained models.

Next, I tested whether the pattern of results were invariant across grade. Similarly, none of the tests of invariance were significant for any of the four pairs of models of optimism, purpose, psychological well-being, and negative risk-taking (all p's > .05), suggesting that the patterns of results were invariant across grade. Table 3 displays the chi-square difference test results. As the constrained models were the most parsimonious models, all further analyses were based on the constrained models.

Research Question 2: Do higher scores on passions predict more positive adjustment over time, even when controlling for structured activity involvement? All four of the initial path models for optimism, purpose, psychological well-being, and negative risk-taking showed good model fit, as indicated by the model fit indices (see Table 4). To address Research Question 2, I examined whether passions predicted the adjustment variables. Figure 1 summarizes the significant cross-lag paths and Table 5 outlines all cross-lag path estimates (note that as paths across adjacent grades were constrained to be equal, paths are shown for only 2 time points). Consistent with my hypothesis, higher levels of passions significantly predicted higher levels of

both optimism and purpose over time. Levels of optimism and purpose did not significantly predict levels of passions over time. Also consistent with my hypothesis, higher levels of passions predicted lower levels of negative risk-taking over time. Contrary to my hypothesis, however, higher levels of negative risk-taking significantly predicted lower levels of passions over time, and the path was stronger in magnitude than the path from passions to negative risk-taking. In addition, contrary to my prediction, higher passions were not significantly associated with levels of psychological well-being over time, nor did well-being predict passions over time.

Structured activity involvement was included in the four initial path models for each of the outcome variables. Results indicated that passions and adjustment were significantly associated when structured activity involvement was included in the models. Further, there were no significant associations between structured activities and the adjustment variables in any of the models. An additional set of analyses where structured activities was dropped from the models did not significantly change the pattern of results. Across all models, structured activities predicted greater passions over time, but passions did not predict structured activities.

Research Question 3: Do positive affect and unstructured leisure activities mediate the relations between passions and adjustment? I conducted a second set of analyses after adding two mediator variables (positive mood and unstructured leisure activities) simultaneously to three of the initial path models (i.e., optimism, purpose, and negative risk-taking). The path model with psychological well-being as an outcome was not included in the mediation analyses because well-being was not significantly associated with passions.

As with the initial models, I conducted tests of invariance across gender and time, and results indicated that the models constrained by gender and time were more parsimonious. Results of the chi-square difference tests are displayed in Table 6. I used the constrained models

to evaluate Research Question 3. The models showed good fit as indicted by the model fit indices, displayed in Table 3. Cross-lag path coefficients are displayed in Table 7, and the significant paths are summarized in Figure 2. Bootstrapped indirect effect values and confidence intervals are displayed in Table 8 for all mediation models.

Passions predicted positive mood over time, such that participants who had higher passions had higher positive mood over time. Additionally, positive mood predicted both optimism and purpose in their respective models, such that participants with higher positive mood also had higher optimism and purpose. The indirect effect of positive mood also was significant, as the confidence intervals did not contain zero for either the optimism or purpose models. Thus, the longitudinal associations between higher passions and higher optimism and purpose were partially mediated by higher positive mood.

Passions was significantly negatively associated with unstructured leisure activities over time, such that participants who had higher passions had *lower* unstructured leisure activity involvement over time. Additionally, unstructured leisure activities were positively associated with negative risk-taking over time, such that participants with *lower* unstructured activities had *lower* negative risk-taking. The indirect effect of unstructured leisure activities also was significant, as the confidence intervals did not contain zero for either the optimism or purpose models. Thus, the longitudinal association between higher passions and lower negative risk-taking was partially mediated by lower unstructured leisure activities.

Discussion

The current study investigated associations among passions and positive adjustment (optimism, purpose, psychological well-being, and lower negative risk-taking) in an adolescent sample using a longitudinal research design. This was the first known study to examine passions

longitudinally in an adolescent sample, and the first to test for bidirectional associations. Further, I sought to add support to previous researchers' work (Philippe et al., 2010) showing significant mediators for the link between passions and adjustment.

Four central issues were considered. First, I examined whether gender and grade moderated associations between passions and adjustment. Second, I tested for bidirectional relations between passions and adjustment over time. Third, I tested whether the significant associations between passions and adjustment were still present after controlling for structured activity involvement. Finally, I examined whether higher positive mood and lower unstructured leisure activity involvement would mediate the associations between passions and adjustment. Key findings and implications are discussed below.

Research Question 1. Are the patterns of associations among passions and adjustment consistent across gender and grade?

I did not find support for a moderating effect of gender as boys and girls showed a similar pattern of results. Previous researchers have failed to find gender differences in levels of passions in adults (Vallerand et al., 2007) and adolescents (Vallerand et al., 2008), but some have found differences in the *types* of activities that girls and boys are more likely to be involved in (Benson, 2008; Sharp et al., 2006). Furthermore, many previous researchers have controlled for gender in research on passions (Coatsworth et al., 2006; Scales et al., 2011) and not examined the moderating effects of gender. Thus, more research is needed to fully determine whether gender is important in associations between passions and adjustment.

The pattern of results was consistent across grade, in that passions and adjustment showed similar associations across the three high school grades (10, 11, and 12). The current study was the first known study to investigate passions in adolescence longitudinally, so the

research question addressing the consistency of results across grade was exploratory. While it could be hypothesized that the relation between passions and adjustment might be stronger over time as adolescents gain autonomy across the high school years, having a two-year time frame from grades 10 to 12 may not have been enough to find an effect in the current study. Therefore, future research should examine this research question using a longer time period across adolescence to fully capture any possible changes in passions and adjustment.

Research Question 2. Do higher scores on passions predict more positive adjustment over time, even when controlling for structured activity involvement?

I found support for my hypothesis that passions would predict adjustment over time, and that adjustment would *not* predict passions over time. These results were found for the adjustment indices of optimism and purpose, such that passions predicted higher adjustment over time, but adjustment did not predict passions. The longitudinal associations between passions and adjustment over time suggest a possible long-lasting link between these variables. These results also replicate previous findings from concurrent research studies that have found that adolescents' passions predicted life satisfaction (Froh et al., 2010; Vallerand, 2008), subjective well-being (Coatsworth et al., 2006) and global happiness (Froh et al., 2010). Thus, consistent with Carbonneau et al. (2008), the results do not support the hypothesis of selection effects, as participants who were higher in adjustment (optimism and purpose) at time 1 did not show significantly higher levels of passions over time. It appears then that the association between passions and adjustment is unidirectional, with higher passions scores being associated with more positive adjustment over time. These results are consistent with theories of passions which state that passions may fulfill basic psychological needs of autonomy, competence, and

relatedness (Vallerand, 2008), and that passions provide a sense of purpose and make individuals' lives more meaningful (Benson & Scales, 2009; Vallerand et al., 2003)

Additionally, in the present study passions predicted lower negative risk-taking over time, but, contrary to my hypothesis, negative risk-taking also predicted passions over time with a stronger effect. Thus, there was support for bidirectionality, such that passions was related to later adjustment and adjustment was related to later passions, with the latter effect suggesting a selection effect. In the current study, the selection effect indicated that participants who were higher in negative risk-taking (more likely to report using alcohol, cigarettes, and marijuana, and to engage in delinquency) had lower passions scores over time. A possible explanation for this result may be that participants who were more likely to be risk-taking may have had a number of individual difference variables or background factors that also made it less likely they would find and develop passions over time. In particular, these participants may have had reduced chances to find and develop passions if they had low availability of resources present to foster passions (e.g., extra-curricular activities, musical or artistic supplies, competent teachers, valuable role models, encouragement from adults or peers, etc.). Further, while I did include parent education as an indicator of socioeconomic status in my analyses as a control variable, it is possible that parent education did not fully capture all of the variability in participants' individual differences or background factors. Researchers need to examine more closely any individual differences that may explain the association between negative risk-taking and passions.

In contrast, the results failed to support the hypothesis that passions would predict higher psychological well-being over time, measured in the present study as combined self-esteem, social anxiety, and daily hassles. These results are in direct contradiction to work reported by many previous researchers. For instance, researchers have found positive associations between

passions and variables similar to social anxiety, namely perceived work relationships (Carbonneau et al., 2008) and interpersonal relationship quality (Philippe et al., 2010). Researchers also have found negative associations between passions and anxiety (Carbonneau et al., 2010) and burnout (Carbonneau et al., 2008), as well as positive associations with self-esteem (Froh et al., 2010). Nevertheless, of the studies mentioned above, only Carbonneau et al. (2008) and Philippe et al. (2010) used longitudinal designs. Therefore, it is possible that passions may be related to concurrent psychological well-being, but that these associations do not hold over a longer period of time, such as one year.

The measure of psychological well-being in this study mostly consisted of lower negative outcomes (low daily hassles and low social anxiety). On the other hand, the other significant findings found in the current study were for higher levels of positive outcomes, such as optimism and purpose. Therefore, it is possible, as implicated by the Positive Youth Development perspective, that passions may contribute more to thriving or showing optimal or exemplary development, than to developmental competence or achieving normative developmental tasks without serious problems. More research exploring this hypothesis is warranted.

Overall, the results indicate that passions appear to be important for positive adjustment in adolescence, not only for higher positive outcomes but also lower negative outcomes. Considering that adolescence is a period characterized by an increased likelihood of negative risk-taking (Scales et al., 2011), passions may operate as a protective factor against such risks to successful development. These results fit with the Positive Youth Development framework, because passions may help foster thriving among adolescents (Scales et al., 2011). In other words, having passions may help adolescents to achieve their full potential and show exemplary development by surpassing normative developmental expectations.

I also controlled for variance in structured activity involvement in the test of Research Question 2. As many previous researchers have shown positive outcomes for structured youth activities, I sought to demonstrate that the results for passions were not simply due to passions being undertaken in a structured context. The results supported my hypothesis, with passions showing significant associations with adjustment even when structured activities (clubs and sports) were included in the path models. Additionally, there were no changes in the results when structured activities were removed from the models. Thus, regardless of whether passions took place in a structured setting or not, passions showed significant associations to adjustment over time. This information suggests that what might be important is whether the adolescents perceive activities to be important and enjoyable and whether they devote significant amounts of time to the activities. Further, motivation may distinguish passions and structured youth activities, where passions are identified by adolescents themselves as enjoyable and may represent intrinsic motivation, whereas structured youth activities often require a long-term goal that may represent extrinsic motivation. Finally, these results offer support for the validity of passions as a concept that is larger than structured youth activities, where both structured and unstructured activities may be embedded within the larger construct of passions.

A surprising finding was that structured activities did not predict any of the adjustment variables (optimism, purpose, psychological well-being, and negative risk-taking) over time, which is not consistent with previous longitudinal research on structured youth activities (Dawes & Larson, 2011; Hansen & Larson, 2007; Mahoney et al., 2007; Shernoff, 2010). Because structured activities did predict passions, however, it is possible that there was little variance in the adjustment measures left over for structured activities to explain, once passions was included

in the models. This finding also supports the suggestion that structured activities may be embedded within the larger construct of passions.

Interestingly, passions appeared to have lower stability over time compared to structured activities, as indicated by the bivariate correlations from grade 10 to 11 and from grade 11 to 12, and by the auto-regressive paths in the path models. The discrepancy in stability values for passions and structured activities may simply represent a difference in measurement of the two constructs, in which structured activities was measured as frequency of involvement, while passions consisted of frequency, enjoyment, and importance. Nevertheless, the finding may indicate that passions are more likely to change over time compared to structured activities. Alternatively, participants may enjoy more breadth in their involvement in passions compared to structured activities, in that adolescents may have more choice and may be able to try out more new activities that they may identify as being passions in comparison to structured activities. Further, it may be easier for participants to switch passions than it is for them to switch structured activities, or for them to quit a passion and take up a new one. In contrast, structured activities may require more serious commitment over time than passions.

Results for the inclusion of structured activities may have important implications for the measurement of activity involvement in adolescence. Previous researchers have used extrinsic or overt criteria to determine the level of activity involvement, such as frequency of participation or time spent in activities (Busseri & Rose-Krasnor, 2010). Nevertheless, based on the results of this study, it may be more important to measure activities by intrinsic factors, or criteria that adolescents define for themselves (i.e., whether participants like or enjoy their passions).

Further, the measurement of passions in the current study only examined the level of passions but did not capture any variability due to the type of passions adolescents possessed.

This is an important consideration, as the measurement of passions in the current study was very broad and could have captured a wide variety of activities. Future research should measure the type of passions in addition to adolescents' level of passions in order to uncover any possible interaction effects with adjustment. In addition, I did not examine how many passions participants possessed. This distinction should be investigated in future research, as researchers examining structured youth activities have stated that breadth and depth may each offer unique contributions to positive outcomes (Rose-Krasnor, Busseri, Willoughby, & Chalmers, 2006).

Research Question 3. Do positive affect and unstructured leisure activities mediate the relations between passions and adjustment?

I found support for my hypothesis that positive mood would be a significant mediator of the association between passions and adjustment. Participants who were higher in passions showed higher positive mood over time, and in turn, higher optimism and purpose. Thus, the significant longitudinal associations between passions and adjustment in the current study may have partly been due to an underlying effect of increased positive mood. These results replicate previous results showing associations between passions and higher positive affect concurrently (Bohnert et al., 2008; Vallerand et al., 2003) and longitudinally (Carbonneau et al., 2010). In fact, Vallerand et al. (2003) predict that there may be a cumulative effect of passions over time, such that when people regularly and continuously spend large amounts of time on their passions, it should lead to more positive affect.

Positive mood in turn was related to higher positive adjustment over time, consistent with the predictions of the broaden and build theory (Fredrickson, 2004) which asserts that there should be beneficial effects of positive emotions on adjustment. Similarly, Philippe et al. (2010) found that higher passions was related to higher interpersonal relationship quality, and the

association was partially mediated by higher positive emotions in the context of participants' passions. The current study offered an important extension of the Philippe et al. study because the mediating effect of positive mood was not restricted to the context of passions, but generalized beyond passions to a more general measure of positive affect. Additionally, the current study extended findings by Philippe et al. (2010) because the significant associations between passions and adjustment were not restricted to interpersonal relationship quality, but extended to other measures of positive adjustment, namely optimism, purpose, and low negative risk-taking.

I also found support for my hypothesis that unstructured leisure activities would be a significant mediator between passions and adjustment, and this is the first known study to examine this variable as a mediator. Participants who were higher in passions reported lower involvement in unstructured leisure activities over time, and in turn, lower negative risk-taking. Thus, the significant negative association between passions and negative risk-taking may have been partly due to an underlying effect of decreased unstructured leisure activity involvement. These results offer support for the routine activity theory (Osgood et al., 2005) which predicts that negative risk-taking behaviour is less likely when adolescents are not engaged in unstructured leisure activities. According to the theory, unstructured leisure activities may lead to risk behaviour when adolescents are in the presence of their peers, when there is a lack of structure, and when there is an absence of adult supervision (Osgood et al., 2005).

Limitations of the present study and directions for future research.

Strengths of the current study were that it involved a large, representative sample of youth, and employed a longitudinal research design over several waves. The study also addressed several important gaps in the literature, including longitudinal associations between

passions and adjustment, associations between passions and negative-risk taking, and mediators of the link between passions and adjustment. Nevertheless, some limitations should be addressed for the current study. One limitation was that the present study was correlational in nature, and therefore causation could not be established. By including multiple time points and assessing variables at each time point in a rigorous design, however, evidence for the nature and possible direction of effects were provided.

Some methodological limitations of the current study also were that some variables were measured using very few items or one item, thus reducing the amount of variability for analyses. Further, as described earlier, any conclusions about mediation must be qualified by the non-normal distribution of the passions variable. A final methodological limitation was that the strengths of the effect sizes, as indicated by standardized regression coefficients, were small in magnitude. However, these effect sizes are common in cross-lagged models that account both for stability between adjacent waves of data and for concurrent associations among variables. In this case, small effects would be expected. Moreover, in the current study, I did not distinguish between sub-types of passions. In the model of passions by Vallerand et al. (2003), passions are divided into two types: harmonious and obsessive passions. According to Vallerand et al. (2003), harmonious and obsessive passions are conceptualized as positive and negative types of passions, respectively. Harmonious passions are in harmony with other aspects of one's life, and one is able to freely choose whether or not to pursue the activities. On the other hand, obsessive passions are defined by more rigid, inflexible engagement in passions due to contingencies attached to the activity (e.g., sense of social acceptance or self-esteem, etc.). Not surprisingly, harmonious passions show positive relations to other adjustment variables, while obsessive passions reveal negative relations (Vallerand et al., 2003). My study did not include a measure of

harmonious and obsessive passions, and thus I could not determine whether the associations to positive adjustment would be due to including only harmonious passions in my study. Nevertheless, based on the pattern of results with positive adjustment outcomes for the current study, it appeared that the passions measure was closer to harmonious passions. Future research should include a fuller measure of passions to distinguish between these two important subtypes, and to examine possible differential results for the subtypes.

I attempted to control for variance in passions that may have been due to structured contexts by adding a separate measure of structured activity involvement to analyses. Nevertheless, the study was limited by a lack of a direct measure of whether the passions were structured or unstructured. Future research should include a measure of whether each participants' passions are structured or unstructured, or whether the passions exhibit the various characteristics of structured activities (i.e., goal-directed, group setting, regular practice times, etc.).

Furthermore, a research question that was not addressed in the current study was whether simply having passions is related to psychological adjustment, regardless of the level of frequency, enjoyment, and importance, in comparison to not having passions (although see Scales et al., 2011 for research on this issue). It was important for the purposes of the present study, however, to include the full sample in the analyses and to examine relative change over time in the variability of passions scores from grade 10 to grade 12. Therefore, the decision to collapse the "I don't have a hobby, talent, special interest" and the "never" categories for each of the passion questions was done in order to answer our primary question of the predictive role of passions on adjustment. Finally, future research on passions should examine more closely the

patterns of engagement in passions among those who do possess passions, in order to determine how these patterns of activity involvement might change over time.

Conclusion

Results of this study may have important implications for supporting adolescent development. It may be worthwhile to invest in resources to allow adolescents greater access to activities, interests, or important causes that may develop over time into passions for those individuals. Thus, parents and educators may consider it worthwhile to actively support and encourage adolescents to consider whether they do, in fact, have passions, and if not, to explore their available opportunities in an effort to find their passions. Any investment in factors that may help to foster thriving among adolescents, as described by proponents of the Positive Youth Development perspective, should be worthwhile as these thriving adolescents are predicted to in turn offer positive contributions to their contexts. Adolescence may be an especially important age period to make this investment, as adolescents are more likely to be seeking out opportunities to develop autonomy, as well as to explore their identities. Finally, the present study may have important implications for researchers to emphasize activities or passions that are undertaken in a context that may not necessarily be structured.

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Table 1

Means and Standard Deviations of Study Measures

Domain	Variable	Grade 10		Grade 11		Grade 12	
		Males	Females	Males	Females	Males	Females
Age	Age	3.40 (0.53)	3.32 (0.50)	4.41 (0.53)	4.34 (0.50)	5.42 (0.56)	5.31 (0.51)
Parental Education	Paternal Education	3.31 (1.52)	3.24 (1.50)	N/A	N/A	N/A	N/A
	Maternal Education	3.37 (1.45)	3.32 (1.44)				
Academic Marks	Self-reported Grades	2.70 (0.91)	2.45 (0.85)	2.71 (0.96)	2.42 (0.82)	2.62 (0.92)	2.29 (0.78)
Passion	Frequency	2.92 (1.32)	2.59 (1.34)	2.68 (1.48)	2.29 (1.50)	2.39 (1.59)	2.18 (1.53)
	Importance	2.10 (1.09)	1.94 (1.10)	1.99 (1.18)	1.80 (1.19)	1.76 (1.24)	1.69 (1.23)
	Enjoyment	3.08 (1.30)	2.82 (1.33)	2.90 (1.50)	2.62 (1.55)	2.60 (1.65)	2.47 (1.61)
Psychological Well-Being	Self Esteem	2.85 (0.70)	2.63 (0.71)	2.75 (0.71)	2.70 (0.70)	2.68 (0.71)	2.76 (0.69)
	Social Anxiety	2.22 (0.58)	2.20 (0.57)	2.30 (0.59)	2.32 (0.54)	2.13 (0.62)	2.26 (0.56)
	Daily Hassles	1.28 (0.38)	1.04 (0.37)	1.30 (0.38)	1.09 (0.37)	1.28 (0.42)	1.10 (0.37)
Negative Risk-Taking	Alcohol frequency	2.87 (1.71)	2.52 (1.38)	3.20 (1.86)	2.70 (1.44)	3.28 (1.87)	2.80 (1.42)
	Alcohol amount	3.31 (1.74)	2.78 (1.43)	3.74 (1.73)	3.20 (1.45)	3.93 (1.73)	3.25 (1.35)
	Smoking	1.54 (1.43)	1.39 (1.06)	1.77 (1.70)	1.48 (1.17)	1.73 (1.60)	1.41 (1.14)
	Marijuana	2.34 (1.74)	2.09 (1.49)	2.82 (1.85)	2.41 (1.59)	3.03 (1.87)	2.22 (1.55)
	Delinquency	1.47 (0.65)	1.27 (0.41)	1.63 (0.74)	1.33 (0.48)	1.61 (0.74)	1.25 (0.42)
Purpose in Life	Purpose In Life	1.97 (0.90)	1.89 (0.90)	1.99 (0.88)	1.95 (0.87)	1.91 (0.94)	2.00 (0.84)
Optimism	Optimism	2.03 (0.68)	1.91 (0.68)	2.00 (0.70)	1.82 (0.65)	1.98 (0.71)	2.01 (0.64)
Positive Mood	Positive Mood	2.27 (0.66)	2.51 (0.58)	2.12 (0.62)	2.38 (0.57)	2.17 (0.63)	2.46 (0.58)
Structured Activities	School Clubs	1.00 (1.34)	1.20 (1.40)	0.94 (1.38	1.14 (1.42)	2.09 (1.44)	1.35 (1.48)
	Non-School Clubs	1.05 (1.30)	0.94 (1.26)	1.09 (1.41)	0.89 (1.27)	1.08 (1.38)	0.87 (1.25)
	School Sports	1.48 (1.38)	1.17 (1.37)	1.37 (1.33)	0.96 (1.27)	0.58 (0.61)	1.52 (0.70)
	Non-School Sports	1.66 (1.47)	1.20 (1.41)	1.65 (1.52)	1.01 (1.36)	1.44 (1.50)	1.06 (1.41)
Unstructured Leisure Activities	Hanging out	2.88 (0.99)	2.79 (0.91)	2.91 (0.94)	2.84 (0.90)	2.87 (0.99)	2.81 (0.92)
	Dating	1.41 (1.35)	1.46 (1.39)	1.73 (1.47)	1.64 (1.49)	1.78 (1.46)	1.78 (1.51)
	Video games	1.68 (1.15)	0.56 (0.78)	1.47 (1.12)	0.48 (0.72)	1.44 (1.16)	0.42 (0.73)
	Internet games	2.10 (0.96)	2.22 (0.94)	2.12 (0.93)	2.14 (0.95)	2.16 (0.91)	2.01 (0.89)
	Skipping class	0.80 (1.16)	0.71 (1.02)	1.08 (1.29)	0.88 (1.14)	1.44 (1.42)	1.02 (1.25)

$N = 2270$

Note: 10 = grade 10; 11 = grade 11; 12 = grade 12. Higher scores for variables indicate higher parent education, academic marks, passions, psychological well-being, negative risk-taking, purpose in life, optimism, positive mood, and activity involvement.

Table 2

Correlations Among Study Variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.
1. Passions10	-	.38***	.29***	.11***	.11***	.10**	.41***	.30***	.18***	.19***	.09**	.12***	.19***	.13***	.11***	-.09**	-.14***	-.08*	.12***	.07*	.06	-.06*	-.08**	-.09**
2. Passions11	.27***	-	.37***	.05	.13***	.07*	.24***	.33***	.18***	.10**	.10**	.06*	.10**	.15***	.06	-.09**	-.17***	-.14***	.05	.08**	.03	-.02	-.07*	-.12***
3. Passions12	.19***	.24***	-	.05	.04	.17***	.21***	.29***	.40***	.09**	.05	.13***	.10**	.10**	.14***	-.10**	-.12***	-.13***	.05	.01	.10**	-.06*	-.08**	-.11***
4. Positive mood 10	.24***	.07*	.06	-	.38***	.37***	.17***	.13***	.04	.40***	.19***	.24***	.36***	.19***	.23***	-.13***	-.04	-.01	.50***	.26***	.24***	-.03	-.01	.02
5. Positive mood 11	.14***	.16***	.09**	.32***	-	.34***	.13***	.09**	.01	.17***	.32***	.21***	.18***	.24***	.19***	-.01	-.11***	.01	.23***	.40***	.22***	.01	-.01	-.01
6. Positive mood 12	.09**	.08**	.14***	.26***	.30***	-	.09**	.10**	.16***	.19***	.21***	.46***	.21***	.22***	.47***	-.10**	-.07*	-.06*	.23***	.25***	.50***	-.02	-.04	-.06*
7. Structured activities 10	.24***	.15***	.09**	.25***	.16***	.06*	-	.70***	.36***	.17***	.09**	.10**	.23***	.19***	.12***	-09**	-.04	-.08**	.17***	.10**	.15***	-.01	.03	-.02
8. Structured activities 11	.16***	.16***	.12***	.20***	.19***	.08**	.67***	-	.52***	.14***	.11***	.11***	.19***	.23***	.13***	-.06	-.01	-.05	.14***	.11**	.12***	-.04	.01	-.01
9. Structured activities 12	.09**	.11***	.21***	.13***	.15***	.15***	.40***	.51***	-	.05	.05	.15***	.06	.10**	.19***	-.01	.04	.08*	.03	.04	.05	.05	.03	.09**
10. Purpose 10	.22***	.09**	.08**	.36***	.16***	.11***	.22***	.17***	.15***	-	.31***	.27***	.48***	.26***	.25***	-.16***	-.09**	-.05	.48***	.26***	.20***	-.15***	-.04	-.07*
11. Purpose 11	.10**	.16***	.07*	.16***	.27***	.13***	.10**	.14***	.13***	.26***	-	.32***	.23***	.48***	.20***	-.06	-.09**	-.04	.20***	.42***	.22***	-.05	-.06	-.04
12. Purpose 12	.09**	.13***	.23***	.12***	.20***	.39***	.10**	.11***	.15***	.19***	.28***	-	.20***	.25***	.53***	-.05	-.01	-.09**	.22***	.28***	.44***	.01	.03	-.05
13. Optimism 10	.18***	.12***	.07*	.21***	.34***	.20***	.25***	.21***	.16***	.56***	.26***	.17***	-	.37***	.32***	-.22***	-.15***	-.12***	.39***	.21***	.21***	-.18***	-.09**	-.13***
14. Optimism 11	.16***	.16***	.07*	.19***	.23***	.40***	.21***	.26***	.16***	.23***	.44***	.22***	.38***	-	.33***	-.11***	-.20***	-.12***	.22***	.39***	.25***	-.10**	-.17***	-.13***
15. Optimism 12	.11***	.11***	.19***	.42***	.21***	.18***	.14***	.14***	.19***	.19***	.23***	.50***	.27***	.38***	-	-.08*	-.06*	-.12***	.17***	.21***	.43***	-.04	-.07*	-.16***
16. Negative risk-taking 10	-.01	-.05	-.06*	-.08**	-.03	-.10**	.01	-.03	-.04	-.11***	-.07*	-.10**	-.14***	-.09**	-.09**	-	.46***	.36***	-.13***	-.06	-.09**	.55***	.29***	.25***
17. Negative risk-taking 11	-.02	-.07*	-.02	-.02	-.10**	-.08**	.04	.08**	.01	-.07	-.17***	-.09**	-.08*	-.21***	-.10***	.34***	-	.47***	-.06*	-.11***	-.07*	.30***	.55***	.36***
18. Negative risk-taking 12	-.01	-.03	-.09**	-.06*	-.05	-.12***	.02	.04	.08**	-.02	-.08**	-.18***	-.08**	-.11***	-.18***	.22***	.30***	-	-.05	-.03	-.13***	.27***	.33***	.57***
19. Psychological well-being 10	.21***	.10**	.11***	.42***	.21***	.18***	.17***	.14***	.10**	.39***	.21***	.17***	.34***	.23***	.22***	-.19***	-.05	-.07*	-	.43***	.35***	-.07*	.01	-.02
20. Psychological well-being 11	.09**	.15***	.09**	.16***	.26***	.19***	.08**	.03	.08**	.13***	.27***	.20***	.13***	.26***	.22***	-.07*	-.20***	-.09**	.30***	-	.40***	-.01	-.02	-.01
21. Psychological well-being 12	.07*	.08**	.12***	.15***	.17***	.45***	.09**	.06*	.03	.13***	.15***	32***	.15***	.18***	.29***	-.10***	-.11***	-.21***	.24***	.29***	-	-.03	-.03	-.10**
22. Unstructured activities 10	.09**	.01	-.08**	.01	-.03	-.06*	.14***	.06*	.01	-.04	-.02	-.07*	-.07*	-.04	-.07*	.50***	.26***	.16***	-.07*	-.06	-.07*	-	.39***	.30***
23. Unstructured activities 11	.05	.03	-.04	-.02	-.05	-.03	.12***	.20***	.08**	-.04	-.08**	-.04	-.06	-.11***	-.06*	.21***	.52***	.21***	-.03	-.13***	-.13***	.33***	-	.41***
24. Unstructured activities 12	.03	-.02	-.07*	-.04	-.03	-.07*	.05	.08**	.25***	-.04	-.09**	-.19***	-.07*	-.06*	-.14***	.15***	.21***	.54***	-.01	-.08*	-.18***	.24***	.33***	-

Note. N = 2270. Girls are above diagonal, boys are below the diagonal. 10 = grade 10; 11 = grade 11; 12 = grade 12. Higher scores for variables indicate higher passions, positive mood, activity involvement, purpose in life, optimism, negative risk-taking and psychological well-being.

Table 3

Tests of Invariance Across Gender and Grade

	Outcome	X^2	*p*
1. Tests of invariance across gender			
Initial Model (*df* = 12)			
	Optimism	17.7	.12
	Purpose	12.23	.43
	Well-being	12.12	.44
	Risk-taking	13.07	.36
Mediation (*df* = 40)			
	Optimism	37.03	.60
	Purpose	35.07	.69
	Risk-taking	53.23	.08
2. Tests of invariance across grade			
Initial Model (*df* = 6)			
	Optimism	6.01	.42
	Purpose	1.20	.98
	Well-being	0.53	.99
	Risk-taking	3.02	.81
Mediation (*df* = 100)			
	Optimism	23.74	.99
	Purpose	24.18	.99
	Risk-taking	25.74	.99

Table 4

Model Fit Indices for Initial Models

	X^2	*p*	CFI	RMSEA	LO	HI	P
Optimism	36.89	.180	1.00	.01	.00	.02	1.00
Purpose	28.20	.560	1.00	.00	.00	.02	1.00
Well-being	39.45	.116	1.00	.01	.00	.02	1.00
Risk-taking	43.52	.053	1.00	.01	.00	.02	1.00

df = 30

Note. CFI = comparative fit index, RMSEA = root mean square error of approximation

Table 5

Paths for Initial Path Models

Paths		*B*	Beta	SE	*p*
Model 1: Optimism as Outcome					
Passion 1 →	Passion 2	.458	.402	.046	<.001
Passion 1 →	Structured Activities 2	.009	.011	.009	.330
Passion 1 →	Optimism 2	.025	.047	.010	.010
Structured Activities 1 →	Structured Activities 2	.690	.661	.023	<.001
Structured Activities 1 →	Passion 2	.054	.037	.028	.053
Structured Activities 1 →	Optimism 2	.009	.013	.012	.465
Optimism 1 →	Optimism 2	.545	.539	.038	<.001
Optimism 1 →	Passion 2	.051	.024	.046	.264
Optimism 1 →	Structured Activities 2	.019	.013	.019	.330
Model 2: Purpose as Outcome					
Paths		*B*	Beta	SE	*p*
Passion 1 →	Passion 2	.460	.404	.046	<.001
Passion 1 →	Structured Activities 2	.008	.010	.009	.373
Passion 1 →	Purpose 2	.035	.051	.014	.009
Structured Activities 1 →	Structured Activities 2	.692	.661	.023	<.001
Structured Activities 1 →	Passion 2	.056	.038	.028	.044
Structured Activities 1 →	Purpose 2	.003	.004	.017	.845
Purpose 1 →	Purpose 2	.384	.393	.039	<.001
Purpose 1 →	Passion 2	.027	.017	.034	.435
Purpose 1 →	Structured Activities 2	.018	.016	.014	.198
Model 3: Psychological Well-Being as Outcome					
Paths		*B*	Beta	SE	*p*
Passion 1 →	Passion 2	.461	.404	.046	<.001
Passion 1 →	Structured Activities 2	.009	.011	.009	.314
Passion 1 →	Well-Being 2	.005	.009	.011	.497
Structured Activities 1 →	Structured Activities 2	.694	.664	.023	<.001
Structured Activities 1 →	Passion 2	.058	.039	.028	.037
Structured Activities 1 →	Well-Being 2	.001	.002	.014	.928
Well-Being 1 →	Well-Being 2	.473	.472	.038	<.001
Well-Being 1 →	Passion 2	.005	.003	.039	.888
Well-Being 1 →	Structured Activities 2	.004	.003	.016	.796
Model 4: Negative Risk-Taking as Outcome					
Paths		*B*	Beta	SE	*p*
Passion 1 →	Passion 2	.465	.406	.046	<.001
Passion 1 →	Structured Activities 2	.010	.013	.009	.266
Passion 1 →	Negative Risk-Taking 2	-.031	-.039	.009	<.001
Structured Activities 1 →	Structured Activities 2	.691	.662	.046	<.001
Structured Activities 1 →	Passion 2	.073	.049	.028	.009
Structured Activities 1 →	Negative Risk-Taking 2	.008	.008	.012	.496
Negative Risk-Taking 1 →	Negative Risk-Taking 2	.671	.605	.036	<.001
Negative Risk-Taking 1 →	Passion 2	-.151	-.094	.037	<.001
Negative Risk-Taking 1 →	Structured Activities 2	.013	.012	.015	.376

Note: 1 = Time 1, 2 = Time 2.

Table 6

Model Fit Indices for Mediation Models

	X^2	*p*	CFI	RMSEA	LO	HI	P
Optimism	112.57	.184	1.00	.01	.00	.01	1.00
Purpose	110.49	.222	1.00	.01	.00	.01	1.00
Risk-taking	138.64	.006	1.00	.01	.01	.02	1.00

df = 100

Note. CFI = comparative fit index, RMSEA = root mean square error of approximation

Table 7

Paths for Mediation Path Models

Model 1: Optimism as Outcome					
Paths		*B*	Beta	SE	*p*
Passion 1 →	Passion 2	.459	.404	.046	<.001
Passion 1 →	Structured Activities 2	.008	.010	.009	.398
Passion 1 →	Positive Mood 2	.026	.054	.009	.002
Passion 1 →	Unstructured Activities 2	-.024	-.046	.008	.004
Passion 1 →	Optimism 2	.021	.038	.010	.033
Structured Activities 1 →	Structured Activities 2	.688	.660	.023	<.001
Structured Activities 1 →	Passion 2	.071	.048	.028	.013
Structured Activities 1 →	Positive Mood 2	-.004	-.006	.011	.717
Structured Activities 1 →	Unstructured Activities 2	.017	.025	.011	.110
Structured Activities 1 →	Optimism 2	.007	.011	.012	.548
Positive Mood 1 →	Positive Mood 2	.460	.491	.035	<.001
Positive Mood 1 →	Passion 2	-.034	-.016	.051	.500
Positive Mood 1 →	Structured Activities 2	.007	.005	.021	.727
Positive Mood 1 →	Unstructured Activities 2	-.007	-.007	.019	.697
Positive Mood 1 →	Optimism Activities 2	.113	.108	.022	<.001
Unstructured Activities 1 →	Unstructured Activities 2	.630	.567	.038	<.001
Unstructured Activities 1 →	Passion 2	-.143	-.059	.050	.005
Unstructured Activities 1 →	Structured Activities 2	.007	.004	.021	.753
Unstructured Activities 1 →	Positive Mood 2	-.026	-.025	.019	.184
Unstructured Activities 1 →	Optimism 2	-.008	-.007	.022	.729
Optimism 1 →	Optimism 2	.504	.498	.039	<.001
Optimism 1 →	Passion 2	.056	.026	.049	.250
Optimism 1 →	Positive Mood 2	.065	.072	.019	<.001
Optimism 1 →	Structured Activities 2	.014	.009	.020	.489
Optimism 1 →	Unstructured Activities 2	-.001	-.001	.018	.972
Model 2: Purpose as Outcome					
Paths		*B*	Beta	SE	*p*
Passion 1 →	Passion 2	.460	.404	.046	<.001
Passion 1 →	Structured Activities 2	.007	.009	.009	.428
Passion 1 →	Positive Mood 2	.026	.054	.009	.003
Passion 1 →	Unstructured Activities 2	-.023	-.044	.008	.006
Passion 1 →	Purpose 2	.031	.044	.013	.023
Structured Activities 1 →	Structured Activities 2	.689	.660	.023	<.001
Structured Activities 1 →	Passion 2	.072	.049	.028	.010
Structured Activities 1 →	Positive Mood 2	-.001	-.002	.011	.911
Structured Activities 1 →	Unstructured Activities 2	.018	.026	.011	.097
Structured Activities 1 →	Purpose 2	-.006	-.006	.017	.739
Positive Mood 1 →	Positive Mood 2	.470	.501	.035	<.001
Positive Mood 1 →	Passion 2	-.024	-.011	.051	.636
Positive Mood 1 →	Structured Activities 2	.003	.002	.021	.893
Positive Mood 1 →	Unstructured Activities 2	-.010	-.010	.019	.608

Positive Mood 1 →	Purpose 2	.199	.147	.031	<.001
Unstructured Activities 1 →	Unstructured Activities 2	.626	.564	.038	<.001
Unstructured Activities 1 →	Passion 2	-.140	-.058	.050	.006
Unstructured Activities 1 →	Structured Activities 2	.006	.004	.021	.768
Unstructured Activities 1 →	Positive Mood 2	-.029	-.028	.020	.133
Unstructured Activities 1 →	Purpose 2	.014	.009	.030	.648
Purpose 1 →	Purpose 2	.334	.340	.040	<.001
Purpose 1 →	Passion 2	.026	.016	.036	.473
Purpose 1 →	Positive Mood 2	.030	.043	.014	.034
Purpose 1 →	Structured Activities 2	.017	.015	.015	.244
Purpose 1 →	Unstructured Activities 2	.001	.001	.013	.963
Model 3: Negative Risk-Taking as Outcome					
Paths		*B*	Beta	SE	*p*
Passion 1 →	Passion 2	.458	.402	.046	<.001
Passion 1 →	Structured Activities 2	.010	.012	.009	.298
Passion 1 →	Positive Mood 2	.028	.057	.009	.001
Passion 1 →	Unstructured Activities 2	-.019	-.037	.008	.019
Passion 1 →	Negative Risk-Taking 2	-.031	-.040	.009	<.001
Structured Activities 1 →	Structured Activities 2	.688	.660	.023	<.001
Structured Activities 1 →	Passion 2	.078	.052	.028	.006
Structured Activities 1 →	Positive Mood 2	.001	.001	.011	.949
Structured Activities 1 →	Unstructured Activities 2	.014	.020	.011	.189
Structured Activities 1 →	Negative Risk-Taking 2	.001	.001	.012	.924
Positive Mood 1 →	Positive Mood 2	.477	.509	.035	<.001
Positive Mood 1 →	Passion 2	-.026	-.012	.048	.598
Positive Mood 1 →	Structured Activities 2	.010	.007	.020	.600
Positive Mood 1 →	Unstructured Activities 2	-.005	-.005	.018	.777
Positive Mood 1 →	Negative Risk-Taking 2	.027	.018	.019	.156
Unstructured Activities 1 →	Unstructured Activities 2	.534	.482	.038	<.001
Unstructured Activities 1 →	Passion 2	-.072	-.030	.058	.213
Unstructured Activities 1 →	Structured Activities 2	-.012	-.007	.024	.610
Unstructured Activities 1 →	Mood 2	-.023	-.022	.022	.309
Unstructured Activities 1 →	Negative Risk-Taking 2	.094	.056	.023	<.001
Negative Risk-Taking 1 →	Negative Risk-Taking 2	.653	.590	.035	<.001
Negative Risk-Taking 1 →	Passion 2	-.127	-.080	.042	.002
Negative Risk-Taking 1 →	Positive Mood 2	.021	.019	.017	.222
Negative Risk-Taking 1 →	Structured Activities 2	-.014	-.021	.016	.391
Negative Risk-Taking 1 →	Unstructured Activities 2	.090	.123	.016	<.001

Note. 1 = Time 1, 2 = Time 2.

Table 8

Tests of Indirect Effects for Mediation Models

Model	Gender	Standardized Indirect Effect	CI
Optimism	Male	.016	.004 to .029
	Female	.018	.004 to .032
Purpose	Male	.015	.004 to .027
	Female	.020	.005 to .035
Risk-taking	Male	-.021	-.031 to -.012
	Female	-.039	-.056 to -.022

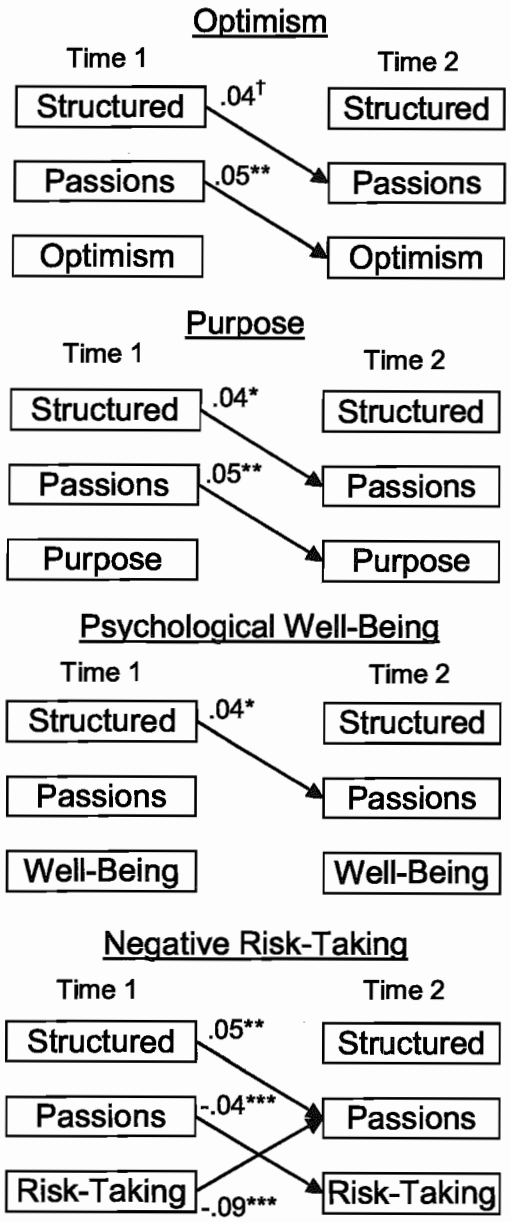


Figure 1. Initial Path Analysis Models Showing Significant Paths.

†$p < .10$, *$p < .05$, **$p < .10$, ***$p < .001$. Only two time points are shown as cross-lagged paths were invariant across the three high school grade levels. Well-Being = psychological well-being, Risk-Taking = negative risk=taking, Structured = structured activity involvement. All lag-1 and lag-2 auto-regressive paths were significant but are not shown. Covariates of parent education and academic marks are not shown. See Table 5 for cross-lagged path coefficients.

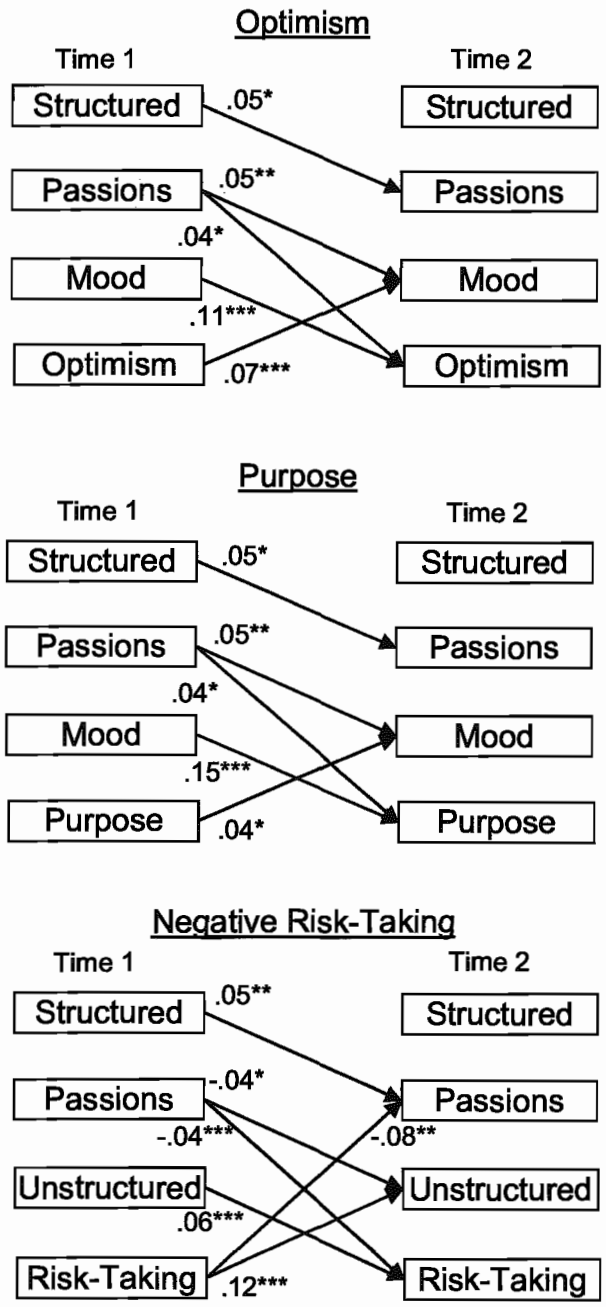


Figure 2. Mediation path models showing significant paths.

*$p < .05$, **$p < .10$, ***$p < .001$. Only two time points are shown as cross-lagged paths were invariant across the three high school grade levels. Well-Being = psychological well-being, Risk-Taking = negative risk=taking, Structured = structured activity involvement, Mood = positive mood, Unstructured = unstructured leisure activities. All lag-1 and lag-2 auto-regressive paths were significant but are not shown. Covariates of parent education and academic marks are not shown. See Table 7 for cross-lagged path coefficients.

APPENDIX A – SURVEY QUESTIONNAIRE

Demographics

PART A **Demographics**

1. How old are you? O 13 O 14 O 15 O 16 O 17 O 18 or over

2. Are you male or female? O Male O Female

3. Were you born in Canada? O Yes O No → If No, how long have you been in living in Canada? _____

4. What is the highest level of education your MOTHER/STEPMOTHER (female guardian) completed?
   - O Did not finish high school
   - O Finished high school
   - O Some college, university, or apprenticeship program
   - O Completed a college/apprenticeship diploma (e.g., electrician) and/or technical diploma (i.e. graphic design, hair dressing)
   - O Completed a university undergraduate degree
   - O Completed a professional degree (e.g., masters, PhD, medical doctor, lawyer)
   - O Still going to school
   - O Don't know

5. What is the highest level of education your FATHER/stepfather (male guardian) completed?
   - O Did not finish high school
   - O Finished high school
   - O Some college, university, or apprenticeship program
   - O Completed a college/apprenticeship diploma (e.g., electrician) and/or technical diploma (i.e. graphic design, hair dressing)
   - O Completed a university undergraduate degree
   - O Completed a professional degree (e.g., masters, PhD, medical doctor, lawyer)
   - O Still going to school
   - O Don't know

Structured activities; Unstructured leisure activities

PART B **Fill in the circle that best describes what you like to do with your free time**

13. ***How often in the LAST MONTH have you done the following?***

	EVERY DAY	SEVERAL TIMES A WEEK	ONCE A WEEK	ONCE OR TWICE A MONTH	NEVER
Gone out with someone (dated)	...O...	...O...	...O...	.....O.....	...O...
Hung out with friends outside of school time	...O...	...O...	...O...	.....O.....	...O...
Gone to school clubs (e.g., music, student council)	...O...	...O...	...O...	.....O.....	...O...
Gone to clubs outside of school	...O...	...O...	...O...	.....O.....	...O...

Passions

14. a) Do you have a hobby, talent, or special interest (or activity)? O Yes O No → If yes, what is it? _____

b) How often do you work on your hobby, talent, or special interest (or activity)?
O Every day O Several times a week O Once a week O Once or twice a month O Never O I don't have a hobby, talent, special interest

c) How important is the hobby, talent, or special interest (or activity) to you?
O Very important O Important O Somewhat important O Not at all important O I don't have a hobby, talent, special interest

d) How often do you enjoy working on your hobby, talent, special interest (or activity)?
O Every time O Most of the time O Some of the time O Rarely O Never

Optimism

PART E **Fill in the circle that best describes you**

		ALMOST ALWAYS OR ALWAYS	OFTEN	SOMETIMES	ALMOST NEVER OR NEVER
1.	I expect the best.....	.....O.....	.....O.....	.....O.....	.....O.....
2.	I feel good about my future.....	.....O.....	.....O.....	.....O.....	.....O.....

Positive Mood

PART F **Fill in the circle that best describes you**

		ALMOST ALWAYS OR ALWAYS	OFTEN	SOMETIMES	ALMOST NEVER OR NEVER
1.	I laugh and smile at a lot of things...	.....O.....	.....O.....	.....O.....	.....O.....
2.	My mood is generally cheerful	.....O.....	.....O.....	.....O.....	.....O.....
3.	I laugh several times a day	.....O.....	.....O.....	.....O.....	.....O.....
4.	I smile often.....	.....O.....	.....O.....	.....O.....	.....O.....

Alcohol

How often do you go drinking or have a drink?
O Never O less than once a month O 1-3 times a month O Once a week
O 2 times a week O 3-4 times a week O 5-6 times a week O Every day

On average, when you are drinking alcohol, about how many drinks do you have?
O Less than 1 drink O 1 drink O 2-3 drinks
O 4-6 drinks O 7-10 drinks O Over 10 drinks

Smoking

Have you EVER smoked a full cigarette? O Yes O No → **IF NO, SKIP TO NEXT SECTION**

How many cigarettes do you usually smoke EACH DAY?
O I no longer smoke O I don't smoke everyday O One O Less than 5
O 6-10 O 11-16 O About a pack O More than a pack

Delinquency

Part W ***In the LAST 12 MONTHS, how often have you done the following?***

	SUBSTANCE	NEVER	ONCE	A FEW TIMES	MORE THAN 5 TIMES
1.	Broken your parents' rules just to see if you could get away with it.....	...O..	...O..	...O..	...O..
2.	Shoplifted.....	...O..	...O..	...O..	...O..
3.	Sneaked out at night while your parents thought you were asleep.....	...O..	...O..	...O..	...O..
4.	Gone joyriding in a car.....	...O..	...O..	...O..	...O..
5.	Joined a gang.....	...O..	...O..	...O..	...O..
6.	Destroyed other people's property.....	...O..	...O..	...O..	...O..
7.	Carried a gun as a weapon.....	...O..	...O..	...O..	...O..
8.	Carried a knife as a weapon.....	...O..	...O..	...O..	...O..

Marijuana

Part V ***In the past 12 MONTHS, how often did you use the following substances or engage in the following behaviours?***

	SUBSTANCE	NEVER	ONCE	A FEW TIMES A YEAR	A FEW TIMES A MONTH	A FEW TIMES A WEEK	EVERY DAY
1.	Hash, marijuana (weed, joint).....	...O..	...O..	...O..	...O..	...O..	...O..

Daily Hassles

PART AA **Below is a list of daily hassles that commonly bother students. Please indicate how often each one bothers you.**

		ALMOST NEVER BOTHERS ME	SOMETIMES BOTHERS ME	OFTEN BOTHERS ME
1.	Classroom was too noisy	.....O.....	.....O.....	.....O.....
2.	Not having enough time.....	.....O.....	.....O.....	.....O.....
3.	Not having enough money.....	.....O.....	.....O.....	.....O.....
4.	My weight.....	.....O.....	.....O.....	.....O.....
5.	Mean/strict teacher.....	.....O.....	.....O.....	.....O.....
6.	Having homework every day.....	.....O.....	.....O.....	.....O.....
7.	Not enough close friends.....	.....O.....	.....O.....	.....O.....
8.	Not enough time to talk to friends.....	.....O.....	.....O.....	.....O.....
9.	Too few dates.....	.....O.....	.....O.....	.....O.....
10.	How I look	.....O.....	.....O.....	.....O.....
11.	Problems with classmates.....	.....O.....	.....O.....	.....O.....
12.	Problems with friends.....	.....O.....	.....O.....	.....O.....
13.	Getting to class on time.....	.....O.....	.....O.....	.....O.....
14.	Problems with boyfriend/ girlfriend.....	.....O.....	.....O.....	.....O.....
15.	Problems with family.....	.....O.....	.....O.....	.....O.....
16.	Being lonely.....	.....O.....	.....O.....	.....O.....
17.	Others' opinions of me.....	.....O.....	.....O.....	.....O.....
18.	Not enough sleep.....	.....O.....	.....O.....	.....O.....
19	Taking tests.....	.....O.....	.....O.....	.....O.....
20.	Household chores	.....O.....	.....O.....	.....O.....

Self-Esteem

PART EE **Fill in the answer that best describes the way you feel.**

		STRONGLY AGREE	AGREE	NEITHER AGREE NOR DISAGREE	DISAGREE	STRONGLY DISAGREE
1.	On the whole I am satisfied with my life	O	O	O	O	O
2.	I feel that I have a number of good qualities	O	O	O	O	O
3.	I am able to do things as well as most people	O	O	O	O	O
4.	I feel I do not have much to be proud of	O	O	O	O	O
5.	I feel useless at times	O	O	O	O	O
6.	I feel that I am a person of worth, at least equal with others	O	O	O	O	O
7.	I wish I could like myself more	O	O	O	O	O
8.	All in all, I tend to feel that I am a failure	O	O	O	O	O
9.	At times I think that I am no good at all	O	O	O	O	O
10.	I take a positive attitude toward myself	O	O	O	O	O

Social Anxiety

PART FF **In the chart below, fill in the answer that best suits you.**

		ALMOST NEVER OR NEVER	SOMETIMES	OFTEN	ALMOST ALWAYS OR ALWAYS
1.	I'm quiet when I'm with a group of other people my age	O	O	O	O
2.	I only talk to other people my age that I know really well	O	O	O	O
3.	I feel that other people my age talk about me behind my back	O	O	O	O
4.	I worry about what other people my age think of me	O	O	O	O
5.	I feel that other people my age are making fun of me	O	O	O	O
6.	I am afraid that other people my age will not like me	O	O	O	O
7.	If I get into an argument with another person, I worry that he or she won't like me	O	O	O	O
8.	I worry about being teased	O	O	O	O
9.	I feel shy with people my age that I don't know	O	O	O	O
10.	I get nervous when I talk to people my age that I don't know very well	O	O	O	O
11.	I worry about doing something new in front of other people my age	O	O	O	O
12.	I feel shy even with other people my age I know well	O	O	O	O
13.	It's hard for me to ask other people my age to hang out with me	O	O	O	O
14.	I'm afraid to invite other people my age to my house because they might say no	O	O	O	O

Academic Marks

PART I **Fill in the answer that best describes you**

1. What marks do you usually get in school?

O A+ (90% - 100%) O A (80% - 89%) O B (70% - 79%) O C (60% - 69%) O D (50% - 59%) O (BELOW 50%)

APPENDIX B – ETHICS FORM

Brock University

Senate Research Ethics Board **Extensions**
3205/4315, Room C315

FROM: David Butz, Chair
Senate Research Ethics Board (REB)

TO: Teena Willoughby, Child and Youth Studies

FILE: 00-116, WILLOUGHBY

The Brock University Research Ethics Board has reviewed the revised research proposal:

"Enhancement of youth resiliency and reduction of

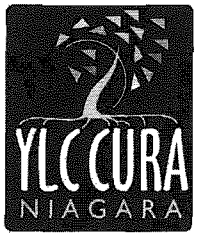
harmful behaviours leading to healthy lifestyle choices"

The Research Ethics Board finds that your revised proposal conforms to the Brock University guidelines set out for ethical research.

*** Accepted as clarified**

Please note: Any Changes or Modifications to this approved research must be reviewed and approved by the committee. If so, please complete form #5 - ***Request for Ethics Clearance of a Revision or Modification to an Ongoing application for Ethics Review of Research with Human Participants*** and submit it to the Chair of the Research Ethics Board. You can download this form from the Office of Research Services or visit the web site:
http://www.BrockU.CA/researchservices/mainethicsformpage.html

DB/dvo



Youth Lifestyle Choices
Community University Research Alliance

The YLC-CURA is a long-term strategic partnership between a number of Brock University faculty & Niagara Region Community agencies to better understand resilience and youth lifestyle choices.

Member Organizations

- **Adolescent's Family Support Services of Niagara**
- **Boys and Girls Club of Niagara**
- **Brock University**
- **Business Education Council of Niagara**
- **Canadian Red Cross**
- **Centre for Addiction & Mental Health**
- **City of St. Catharines**
- **City of Welland**
- **Centre De Sante Communautaire**
- **Contact Niagara**
- **District School Board of Niagara**
- **Early Childhood Community Development Centre**
- **Family & Children's Services/Family Counselling Centre**
- **GLBTQ Outreach Project of Niagara**
- **Institute for Enterprise Education**
- **Lighthouse Niagara**
- **Ministry of Corrections Probation and Parole Services**
- **Niagara Alcohol & Drug Assessment Service**
- **Niagara Catholic District School Board**
- **Niagara Centre for Youth Care**
- **Niagara District Health Council**
- **Niagara Regional Police**
- **Operation Springboard**
- **Port-Colborne/ Wainfleet Healthy Lifestyles Coalition**
- **Regional Municipality of Niagara-Community Services Children's Services Division**
- **Regional Niagara Public Health Department**
- **St. Catharines Chamber of Commerce**
- **St. Catharines Public Library**
- **The Raft**
- **YMCA**
- **YWCA of St.Catharines**

The YLC-CURA is a core partner on a Health Canada Centre of Excellence for Youth Engagement

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YLC-CURA is a Social Sciences & Humanities Research Council of Canada funded project.

APPENDIX C – PARENT INFORMATION LETTER

Parent/Guardian:

Since January 2000, the Niagara Catholic District School Board has been an active member of the Youth Lifestyle Choices – Community University Research Alliance (YLC–CURA), which consists of 31 community agencies and 15 faculty at Brock University. Our goal is to better understand youth lifestyle choices, both those involving risk and those that are positive. In order to do this, we are following youth in Niagara as they continue through adolescence. We believe that if we can gain an understanding of these choices and of the protective factors that youth will need in life, we can begin to develop more effective ways to enhance their coping skills and enable youth to make positive lifestyle choices.

In 2003 and 2004, YLC-CURA surveyed over 7,000 youth in the Niagara Region, and may have included your child in the study. The information gathered has been published in many reports, and used by multiple community agencies in Niagara to improve their programming and to apply for more government funding. This information is also being used to enhance curriculum with relevant statistics that reflect Niagara youth lifestyles. With continued research, we will be in a unique position to explore the pathways students take as they progress through adolescence. We are writing to ask your permission for your child to participate in completing the survey again. The survey will take approximately 45 minutes to complete. Completing the survey again is critical in order to examine how youth change in their perceptions as they go through adolescence. Your child will be asked to answer a number of questions about lifestyle choices and experiences (e.g., questions involving computer use, aggression, victimization, school culture, substance use, daily hassles, family lifestyle, depression, anxiety, friendship quality, etc.). A copy of the questionnaire is available in the school office. This information will allow us to understand how youth make decisions about lifestyle choices and how transition periods, such as entry to the secondary school system, affect those decisions.

This project has received ethics clearance from the Brock University Committee on Research with Human Participants, and the Niagara Catholic District School Board, and is funded by the Social Sciences and Humanities Research Council of Canada. The project will be implemented during the Teacher Advisory Group (TAG). The content of the questions address issues found in provincial curriculum. The questionnaire acts as an educational and discussion tool for teachers, students, and parents.

All of the information that we record will be kept completely confidential. Only group data will be reported. This group data may eventually be housed in an archive, again with no identifying information. You and your child will be free to withdraw your participation at any time without penalty. More specifically, non-participation will not affect your child's grades in any way. Students who do not wish to complete the survey will complete an alternative educational task.

We hope that you and your child will be willing to participate in our project and we look forward to sharing our findings with you at the end of this project. We have attached a consent form for you to let us know if you wish your child to participate in this project. **ONLY** return the form if you do **NOT** wish your child to participate. If you do **NOT** want your child to participate please sign and return the attached form to the Student Services Department in your child's school **by April 7, 2006**. We also will ask your child to provide assent to participating in the study.

If you have any questions or concerns about your participation in the study, you may contact Michael Busseri at 905-688-5550, ext. 4798 (or by email at cura@www.brocku.ca), or the Research Ethics Officer at 905-688-5550, Ext. 3035. For more information, you can access our website www.brocku.ca/cura. Thank you for considering our project.

APPENDIX D – PARENT CONSENT FORM

Youth Lifestyle Choices: Community University Research Alliance
BROCK UNIVERSITY - YOUTH RESILIENCE QUESTIONNAIRE

- I understand that this research study in which I have agreed to allow my child to participate is designed to better understand factors that foster healthy lifestyle choices in adolescence. I understand that this study also will identify where gaps may exist in services available to youth in the Niagara Region, and as such, will be of benefit to my child. This study is being conducted by the YLC-CURA (Professor Willoughby, email address twilloug@brocku.ca, 905-688-5550, ext. 4281).
- I understand that my child will be asked to answer a number of questions about lifestyle choices and experiences (e.g., questions involving computer use, aggression, victimization, school culture, substance use, daily hassles, family lifestyle, anxiety, friendship quality, etc.).
- I understand that a copy of the questionnaire is available for inspection in the school office. The questionnaire will take approximately 45 minutes to complete. Students who do not have parental permission or who choose not to complete the questionnaire will have 45 minutes to complete an alternative educational activity.
- I understand that my child's questionnaire may be matched to previous year's questionnaires as part of this long-term study.
- I understand that my child's participation in this study is voluntary and that my child or I may withdraw from the study at any time and for any reason without penalty.
- I understand that there is no obligation for my child to answer any question in the questionnaire that they consider invasive or inappropriate.
- I understand that there are very minimal potential risks to my child to participate in this study. Based on the YLC-CURA's experience with youth filling in similar surveys in 2001, 2003, and 2004, I understand that my child is not anticipated to experience any negative feelings about the survey. In case he or she has questions or concerns, however, I understand that the YLC-CURA research staff will be available in the classroom to answer questions and will provide all students with a bookmark that includes phone numbers of youth-serving agencies in Niagara. I understand that all data will be kept completely confidential, except in the rare instance where a child indicates that they may be in danger of being abused.
- I understand that only group data will be reported and no information about individual responses will ever be given to schools, teachers, or anyone else. I understand that I will not have access to my child's responses. The data, with identifying information removed, will be retained indefinitely and will be securely stored in a locked office in the research laboratory. Group data only may be published, presented at conferences, used to evaluate programs, or used for secondary data analyses by other researchers. Feedback and information about the results of this study will be posted on the YLC-CURA website (www.brocku.ca/cura).
- I understand that my child will be asked if they would like to participate again in the study several years after they graduate so that we can understand more about the ways in which young people change and stay the same as they get older. I understand that my child will be asked if they would be willing to provide their email address, if applicable, so that we can contact them later. I understand that their email address will be kept strictly confidential in a locked cabinet in our lab - no researcher other than the primary researcher will have access to that information. I understand my child's email address only will be used to initiate contact but that my child will have to give permission before being asked to answer any survey questions.
- This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics Board. (File #00-116)

Please return this form to the Student Services Department of your child's school by April 7, 2006, <u>ONLY</u> if you do <u>NOT</u> want your child to participate.

Child's name (first and last) _____

Child's Birthdate _____

Parent/Guardian Signature _____ Date _____

If you have any questions or concerns about your participation in the study, you may contact Michael Busseri at 905-688-5550, ext. 4798 (or by email at cura@www.brocku.ca), or the Research Ethics Officer at 905-688-5550, Ext. 3035. We also have a website, www.brocku.ca/cura that you can access for more information. Please keep a copy of this form for your records.

APPENDIX E - PARTICIPANT ASSENT FORM

Youth Lifestyle Choices - Community University Research Alliance (YLC-CURA)
Brock University - Youth Resilience Questionnaire

- I understand that I am agreeing to participate in this study which will involve answering a series of questions concerning lifestyle choices and experiences. I understand that this study also will identify where gaps may exist in services available to youth in the Niagara Region, and as such, will be of benefit to me. This study is being conducted by the YLC-CURA (email at cura@www.brocku.ca).
- I understand that I will be asked to answer a number of questions about lifestyle choices and experiences (e.g., questions involving computer use, aggression, victimization, school culture, substance use, daily hassles, family lifestyle, anxiety, friendship quality, etc.).
- I understand that my participation in this study is voluntary and that I may withdraw from the study at any time and for any reason without penalty. I understand that the questionnaire will take about 45 minutes to complete. Students who choose not to complete the questionnaire will have 45 minutes to complete an alternative educational activity.
- I understand that my responses to the questionnaire may be matched to previous year's questionnaires as part of this long-term study.
- I understand that there is no obligation to answer any question in the questionnaire that I consider invasive or inappropriate.
- I understand that my parents or guardians have been informed about the study and have consented to my participation, although this does not mean that I must participate.
- I understand that only the YLC-CURA researchers will have access to the data. I understand that all data will be kept confidential except in the case where I provide information that indicates that I am in danger of being abused.
- I understand that there are very minimal potential risks to my participation in this study. Based on the YLC-CURA's experience with youth filling in similar surveys in 2001, 2003, and 2004, I understand that I am not expected to experience any negative feelings about the survey. In case I have questions or concerns, however, I understand that the YLC-CURA research staff will be available in the classroom to answer questions and will provide all students with a bookmark that includes phone numbers of youth-serving agencies in the Niagara Region.
- I understand that only group data will be reported and no information about individual responses will ever be given to schools, teachers, or anyone else. The data, with identifying information removed, will be retained indefinitely and will be securely stored in a locked office in the research laboratory. Group data only may be published, presented at conferences, used to evaluate programs, or used for secondary data analyses by other researchers. Feedback and information about the results of this study will be posted on the YLC-CURA website (www.brocku.ca/cura) in September 2006.
- One of the most valuable parts of our research is that we are able to describe the ways in which young people change and stay the same as they get older. We know that the time between high school and young adulthood is a very unique time of life and we think that it is important to find out more about it. In order to see how people develop, we need to have future information from the same people who gave us information during high school - thus, no one can take your place in this study! We would like to ask you about your experiences again after you graduate, as well as provide you with ongoing feedback about the results of our study.
- If you would be willing for us to contact you in a year or two, please provide us with your email address _____.
- Email addresses only will be used to send you information about the results of our study and to ask whether you would be interested in being part of our study in the future. Your email address will be kept strictly confidential in a locked cabinet in our lab and no researcher other than the primary researcher will have access to that information.

Participant Signature _____ Date _____

This study has been reviewed and approved by the Brock Research Ethics Board (File # 00-116). If you have any questions or concerns about your participation in this study, you may contact Michael Busseri at 905-688-5550, ext. 4798 (or by email at cura@www.brocku.ca), or the Research Ethics Officer at 905-688-5550, Ext. 3035. We also have a website, www.brocku.ca/cura, that you can access for more information. Please keep a copy of this form for your records.

Teena Willoughby, Ph.D. Professor, twilloug@brocku.ca 905-688-5550, ext. 4281